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# RESPIRATORY EXPERIMENTS ON MAN

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The recent remarkable advances in the physiology of respiration have been largely based on observations made on man.[1] This fact, coupled with their simplicity and ease of performance, fits these experiments to fill a widely felt pedagogic need. In the training of medical students heretofore, experiments on animals under more or less unnatural conditions have predominated. On man, who is properly the chief interest of the future physician, relatively little has been attempted. Indeed, it is not the least of the contributions which recent advances in the field of respiration have made that they have shown that, given the ingenuity to devise proper experiments, man himself, the normal healthy subject as well as the patient exhibiting functional disturbances, becomes a more profitable *Versuchstier* than dog, rabbit or frog.

The development of the art of conceiving experiments suitable for performance on man, and a more general recognition of the fact that such experiments are possible, free from danger and peculiarly instructive, would go far toward effecting the long-needed but heretofore difficult cooperation of physiology and internal medicine. Respiration is a field peculiarly suited to such cooperation. It is already evident that the vogue in internal medicine, which the introduction of the sphygmomanometer and the methods for determining arhythmia have given to circulatory problems during the past few years, will be exceeded during the period now beginning by interest in the application of physiologic methods to the clinical problems of respiration. Clinicians are beginning to realize that the alveolar carbon dioxid is a normal constant at least equal in clinical importance to arterial pressure. In fact, the variations of the former are probably of greater significance in disease than are those of the latter function. The method for determining the alveolar carbon dioxid is almost as easy and as readily applicable to clinical conditions as is the measurement of arterial pressure.

Up to the present time, however, respiratory experiments on man have been introduced into physiologic laboratory courses in very few medical schools, and into even fewer laboratory manuals. To meet this lack the experiments described below will, it is hoped, be found useful. They are susceptible of almost unlimited modification and extension. They are drawn from the work of many investigators. Their present interpretation as applied to the normal control of respiration is mainly due to Haldane and his collaborators. On the abnormal side I have particularly attempted to emphasize their significance for respiratory failure under anesthesia and for a form of shock. Recent observations by a number of investigators both in laboratory and clinic suggest that the greatest value of the theory of respiration which they support will probably be found in the new point of view which it affords for attack on the difficult problems of acidosis. In cardiorenal and in diabetic cases, as well as in normal persons at great altitudes, the alveolar carbon dioxid is an index of the degree of acidosis.

## I. FORCED BREATHING

1. *Forced Breathing and Apnea Vera.*—The subject, seated or lying down, breathes as deeply as possible about eighteen times a minute. Attention should be fixed on drawing deep inspirations. After from twenty to forty seconds the effort is discontinued, and the subject allows his respiration to act involuntarily. In typical cases, for a period varying from ten to thirty seconds thereafter, the subject either stops breathing altogether or breathes in a very shallow and ineffective manner. *The carbon dioxid content of the blood having been decreased (acapnia), the respiratory center ceases to act until it reaccumulates up to the normal stimulating amount or "threshold value."* In a large class of students one finds marked individual differences in the results of this experiment, some giving a perfect apnea, others merely a shallow or irregular respiration. Numbness and tingling in the hands and feet usually occur also. The principal difficulty is to keep the subject from breathing too fast and making such vigorous exertions, particularly in expiration, that the increase in carbon dioxid production is considerable and the increased elimination (the whole object of the experiment) only slight. Under these conditions of course no apnea occurs.

2. *Prolonged Forced Breathing Followed by Cheyne-Stokes Respiration.*—If the forced breathing is continued for two or three minutes or longer, and apnea vera then allowed to occur, many subjects toward the end of the period of apnea experience an oxygen want. The lips turn slightly blue. This oxygen lack may initiate Cheyne-Stokes breathing lasting sometimes for several minutes. Prolonged forced breathing induces "light-headedness," polyuria, shivering, muscular weakness and other functional disturbances.

3. *Forced Breathing without Excessive Elimination of Carbon Dioxid.*—A large paper bag (obtained from a grocery store) is held over the nose and mouth while the subject does forced breathing. The peculiar and disagreeable sensations of acapnia do not occur, as excessive loss of carbon dioxid is prevented by the

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[1] For a review of the entire literature see C. Gordon Douglas: Ergebn. d. Physiol., 1914, xiv, 338.

rebreathing. The voluntary effort is found to be much less than in the previous experiments. If the bag has been so closely applied to the face that the same air has been breathed again and again, the subject subsequently experiences no apnea, and may even be unable to stop breathing if he tries. This experiment shows that the apnea in 1 and 2 was due to alteration in the blood gases (mainly decrease of carbon dioxid), and not to a nervous reflex set up by the distention and collapse of the lungs during the forced breathing. It was not apnea vagi.

For this and similar experiments the only recording apparatus necessary consists of a pneumograph fastened around the body and connected by means of a small rubber tube with a tambour writing on a smoked drum. An easily constructed form of pneumograph consists of a coil of spring wire from 16 to 20 cm. long, 2 cm. in diameter, covered with thin-walled rubber tubing, and fastened around the body with a small chain. For teaching purposes it is best to require students to get graphic records of everything possible. The record fixes their attention and they learn incidentally.

## II. EXPERIMENTS ON HOLDING THE BREATH AS LONG AS POSSIBLE

1. The subject holds his breath after a moderate inspiration until the breaking-point is reached. This usually occurs after about forty seconds.

2. The breath is held after a very deep inspiration. Fifty seconds or a minute may elapse before the breaking-point is reached.

3. The subject performs forced breathing for a couple of minutes. The breath can then be held for two or three minutes.

4. The subject draws two or three deep breaths of oxygen from a bag. In some subjects the breath can then be held no longer than merely with air. In others it may be held a few seconds more.

5. The subject performs forced breathing for as long a time as in 3. He then draws two or three deep breaths of oxygen, and holds his breath with the lungs full of oxygen. It can be held much longer than in 3. The record (Vernon) for this experiment (after six minutes of forced breathing and with the lungs full of oxygen) is eight minutes and thirteen seconds.

These five parallel experiments show that the imperative demand to breathe (in 1 and 2) is chiefly due to accumulation of carbon dioxid and not to any great extent to lack of oxygen (compare 4); but that in a prolonged period of apnea vera and voluntary apnea a lack of oxygen occurs and reinforces the stimulus of carbon dioxid.

## III. EXPERIMENTS ON REBREATHING

1. *The Immediate Effects of Total Rebreathing (Due Chiefly to Excess Carbon Dioxid).*—The nostrils are compressed with a nose-clip and the subject breathes from and into a rubber bag containing 20 to 40 liters of air. The amplitude of respiration is soon augmented, and in the course of a few minutes the subject is panting heavily forty times a minute. He usually develops a typical carbon dioxid headache, but this wears off in fifteen or twenty minutes after the experiment is ended.

2. *The Effects of Insufficient Oxygen without Excess of Carbon Dioxid.*—The bag is refilled with fresh air and the experiment performed again, but with this difference that a vessel of 1 or 2 liters capacity filled with soda-lime or broken sticks of sodium hydrate is placed between the bag and the subject's mouth so that he breathes through it into and from the bag. The carbon dioxid exhaled by the subject is thus absorbed, and he gradually consumes the oxygen in the bag. As a rule there is no noticeable deepening or quickening of the breathing, and the subject will first become cyanosed and then unconscious without appreciable augmentation of breathing. This experiment should *always be carefully supervised,* as it is not free from danger. If continued for more than ten minutes it is usually followed by a severe frontal headache, developing slowly for several hours thereafter, together with other ill effects, and lasting from twenty-four to forty-eight hours.

3. *Cheyne-Stokes Breathing from Partial and Intermittent Lack of Oxygen.*—In place of the bag a tube or pipe from 3 to 5 cm. in diameter and from 80 to 150 cm. in length is attached to the soda-lime tin. After breathing through this device for a few minutes marked Cheyne-Stokes breathing usually results. The carbon dioxid exhaled by the subject is absorbed by the soda-lime close to his mouth, and the long dead space of the tube beyond produces a deprivation of oxygen. This deprivation induces a few deeper breaths. The subject thus gets more fresh air from the tube; the lack of oxygen is temporarily relieved; and apnea results because of the loss of carbon dioxid during the preceding deep breaths. Thus alternating periods of apnea and hyperpnea develop.

The vessel to hold soda-lime or sodium hydrate is conveniently made of a large tin-can with a well-fitting top made air-tight with tire tape or plasticine. Into the top and bottom short pieces of metal tubing 2 cm. in diameter are soldered. Inside each end of the can is placed a slightly concave disk of wire gauze. Soda-lime must be granular and quite moist to act well. That on the market is much too dry and must be moistened. Soda-lime is easily made of slaked lime and sodium hydroxid solution mixed in an iron pot.

## IV. EFFECTS OF CARBON DIOXID AND OXYGEN, RESPECTIVELY

1. *Carbon Dioxid as a Respiratory Stimulant.*—The bag is filled with fresh air to which from 2 to 4 per cent. of carbon dioxid gas has been added. Breathing this mixture induces immediately a considerable increase in the volume of breathing.

2. *Oxygen under Normal Conditions Neither a Stimulant Nor a Depressant.*—The bag is filled with pure oxygen gas, which the subject breathes through soda-lime. Neither increase nor decrease in the rate or volume of breathing is induced. This experiment is very conveniently performed with the so-called Hill's bag, in which oxygen is generated by the addition of water to sodium peroxid, for when the bag is merely shaken the sodium hydrate solution which remains absorbs the carbon dioxid. If a spirometer is used (as in VI) it is easily shown that the consumption is no greater from pure oxygen than from air.

## V. REFLEX INHIBITION OF THE RESPIRATORY CENTER BY DISTENTION OF THE LUNGS

A spirometer is loaded so that the air within it is under a pressure of 8 to 10 cm. water gauge. This is connected either to a large T-tube or a large three-way tap. The spirometer is filled with fresh air, the connecting tube clamped, and the nose compressed.

*During a preliminary period the subject breathes* through the tap or T-tube to the outside air. At the end of an expiration the outside air is suddenly shut off and the connection to the spirometer opened. Under the stimulus of pulmonary distention the breathing becomes markedly slower and deeper. After eight or ten seconds the connection to the spirometer is shut off and that to the outside opened. Normal breathing almost immediately returns.

This experiment was first performed by Miss Johanne Christiansen working with Dr. J. S. Haldane. The inhibitory influence on respiration which it shows occurs to some extent under the so-called positive and negative pressure conditions for spontaneous breathing after the opening of the thorax, and also under intratracheal insufflation. It is one of the principal advantages of insufflation that it thus tends to prevent the development of acapnia by inhibiting spontaneous breathing, the jet of air supplying ample oxygen, but not washing out carbon dioxid to an equal extent.

## VI. THE OXYGEN CONSUMPTION DURING REST AND WORK

The subject breathes from and again into a spirometer, exactly counterbalanced so as to move as easily as possible, through soda-lime or sodium hydroxid. As the oxygen is consumed, the spirometer sinks and this is easily recorded on a smoked drum. The spirometer is raised at intervals by running oxygen into it from a tank or generator of this gas. The consumption of oxygen by the subject is recorded first at rest, and then during exercise with the arms or legs. The student should then graduate the spirometer and the graphic records so as to determine the oxygen consumption in cubic centimeters per minute, by pouring measured volumes of water into a bottle from which the air is thus displaced into the spirometer. During rest the consumption may be less than 300 c.c. per minute, and during exercise on a stationary bicycle more than 3,000 c.c. per minute.

## VII. ARTIFICIAL RESPIRATION

Both the Schäfer[2] and Sylvester methods of artificial respiration are tested by placing a clip on the subject's nose and a tube in his mouth. The tube is attached to a well counterpoised gasometer arranged to record on a smoked drum. Before each test the gasometer is filled with fresh air. A more accurate arrangement is to use a mouthpiece with inspiratory and expiratory valves connected with a large gas-meter. The experiments are repeated after the subject has performed forced breathing. Artificial respiration, when applied to a subject in apnea vera, affords far less tidal movement of air than when the subject is not apneic.

(In an experiment of this sort with Dr. J. S. Haldane in which I was the subject and the tidal volume was determined with a gas-meter, the effects of the Schäfer method after forced breathing were so markedly intermittent as to form a sort of artificial Cheyne-Stokes breathing. Such observations indicate that even when natural breathing has ceased, as after drowning, the condition of the respiratory center and of muscle tonus largely determines the efficiency of manual methods of artificial respiration.)

## VIII. DETERMINATION OF THE ALVEOLAR CARBON DIOXID[3]

For this the apparatus consists essentially of a gas buret (a bulb and narrow tube) holding from 10 to 20 c.c., graduated in 0.01 c.c., and with a three-way stopcock, one tube of which is connected with a bulb containing 10 per cent. potassium hydroxid solution. A rubber tube 100 to 150 cm. long and 2 cm. in diameter has a small hole punched near one end. This hole is slipped over the inlet tube of the gas buret, which is then filled with mercury or (for student purposes) with acidulated water.

1. While at rest and breathing naturally, the subject at the end of a normal inspiration makes a sudden and very deep expiration into the tube, and then holds his tongue against the end of the tube until the buret has been filled with the air from the depths of the lungs which is caught within the tube. This is termed the "inspiratory sample," as it gives the percentage of carbon dioxid in the alveolar air at the height of inspiration. It is sufficient for most purposes, although for very accurate work it is averaged with an "expiratory sample" obtained from a sudden deep expiration into the tube *at the end of a normal expiration. The alveolar* air of normal men contains 5.3 to 5.7 per cent. carbon dioxid.

2. The subject takes a few minutes of vigorous exercise (running up and down a flight of stairs five or six times) and then makes another determination.

3. He then performs forced breathing and makes a determination of the carbon dioxid content of the air of the lungs during the period of apnea and again (4) at the instant when spontaneous breathing returns.

(The instruments — the so-called portable Haldane apparatus — for such determinations are made by Siebe, Gorman & Co., 187 Westminster Bridge Road, London. They analyze for carbon dioxid, oxygen and combustible gases. I have recently suggested to Siebe, Gorman & Co. that they supply a smaller Haldane apparatus to analyze only for carbon dioxid and to be called "The Small Haldane Apparatus for Clinical Purposes." They are also sole makers of the Douglas bag, Hill bag, and other useful respiratory apparatus. Bohr gas meters [1 and 10 liters per revolution] are also very useful. They are made by the Dansk Maaler Fabrik, Copenhagen.)

## IX. METABOLISM EXPERIMENTS DURING REST AND EXERCISE WITH THE DOUGLAS BAG

This apparatus consists of a nose-clip, mouthpiece, inspiratory and expiratory valves, a large three-way tap and a rubber bag carried on the back. During a measured period of time (from one to five minutes) the entire volume of the expired air is caught in the bag. The volume of this air is later measured and its oxygen and carbon dioxid content determined by analysis. The oxygen consumption, and carbon dioxid elimination per minute, and the respiratory quotient are thus determinable in man under normal conditions and forms of exercise.

## X. THE DEAD SPACE OF THE RESPIRATORY TRACT

The large rubber tube is placed over the Haldane analyzer (as in VIII), the other end of the tube being connected either with a rubber bag (capable of containing 3 or 4 liters) or with a small graduated spirometer. After a normal inspiration the subject suddenly makes the deepest possible expiration through the tube into the bag or spirometer. The alveolar air is thus obtained and determined as in Experiment VIII. A sample of the air in the bag or spirometer is also analyzed, and the total volume of the expiration measured. From these data, and the dead space of the apparatus, the volume of the dead space of the respiratory tract (assumed to have been filled with air containing no carbon dioxid) is easily calculated. This method which I devised has not previously been published. It is now being used in experiments to determine the influence of close, fresh and chill air on the dilatation and contraction of the bronchi.

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[2] The illustrated chart describing this method drawn up by the Commission on Resuscitation from Electric Shock may be obtained from the National Electric Light Association, 29 West Thirty-Ninth Street, New York City.

[3] For the analytical methods in convenient and compact form see "Methods of Air Analysis," by J. S. Haldane, C. Griffin and Company London, 1912.

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# THE CARDIAC EFFECTS OF IMMODERATE COLLEGE ATHLETICS [*]

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The frequency of cardiac lesions among the men participating in competitive sports at the University of Wisconsin has emphasized the urgency for a study of this subject from a clinical point of view. From this aspect it may be divided into three parts: first, the immediate effects of severe muscular strain on the heart; second, the effects of training and a series of severe athletic contests on the heart, and, third, the ultimate effects on the subsequent life of an individual of alterations brought about in the heart through athletic contests in early life.

Recent medical literature has been rich in the study of the immediate effects on the heart of severe prolonged muscular exertion.[1] From the physiologic point of view the results of the various investigations in this field coincide sufficiently to make it possible to draw the following rather definite conclusions:

1. Muscular exercise sufficient to cause an increase in cardiac activity causes a rise in the systolic and diastolic arterial blood-pressure, as well as in the venous blood-pressure.

2. As a rule, the rise in the systolic pressure is greater than in the diastolic, thereby giving an increase in pulse-pressure. Lowsley interprets this as meaning augmentation as well as acceleration of cardiac action.

3. The rise in the systolic pressure increases after the exercise is begun and increases to a maximum, after which it may decline, to increase again to the maximum, if renewed effort is made. It remains above normal. however, until the muscular effort ceases, after which it usually declines to and frequently below normal.[2] The rise of the diastolic pressure reaches its maximum at about the same time as the systolic or a little later.[3] It fluctuates little after the maximum is reached, and returns to normal more slowly than the systolic and invariably shows a fall to subnormal after exercise (Lowsley).

4. The pulse-pressure curve generally follows the contour of the systolic curve, because of the fact that the systolic pressure fluctuates more than the diastolic (Lowsley).

5. The venous pressure usually rises to a maximum, which is maintained throughout the period of exercise. If, however, the exercise be not severe and deep breathing come on, it may drop to normal during the exertion. As a rule, it drops fairly rapidly to normal after exercise, but in some individuals remains high for a considerable period (Hooker).

6. In exercises requiring severe strain with the chest rigid and the glottis closed, the blood-pressure is increased more than the heart-rate, and the venous pressure is especially high.

7. The pulse-rate rises rapidly at first, but usually does not reach its maximum as soon as the blood-pressure does.[4] After the maximum rate has been reached, there is not much variation until the muscular effort ceases, when there is a fall to normal, or, rarely, to subnormal (Lowsley). The fall of the pulse-rate after exercise is, however, much less rapid than the fall of the blood-pressure. After prolonged rapid muscular exercise, the pulse-rate may persist above normal for a long period of time. There may be a secondary rise "which is probably a reflex effort due to the low blood-pressure of the subnormal stage" (Lowsley).

8. Since, after prolonged exertion, the systolic pressure falls more rapidly than the diastolic, there results a low pulse-pressure (Lowsley). At the time of this low pulse-pressure, albumin is frequently found in the urine. An albuminuria due to low blood-pressure has been described by Erlanger and Hooker.

9. "Rapid exercises, vigorous, fatiguing and exhausting, are followed by a fall of pressure below normal, which lasts longer than after moderate exercise, even if the former is continued for a very short period and the latter for quite a long period of time" (Lowsley).

10. "Long-distance running races and similar forms of exhaustive exercise give rise to a serious strain on the heart, as is indicated by the long period of subnormal blood-pressure" (Lowsley).

11. In hypertrophied hearts in which there is a systolic murmur not due to valvular lesions, the murmur may temporarily disappear after a severe athletic contest. On the other hand, murmurs of this character may appear in the heart, where none were heard before the contest. Barach has called attention to cases of this nature.

12. After prolonged severe contests arhythmia may appear in the cardiac action. It is possible that this may be due to a mechanical injury to the conducting apparatus; that is, fibrillary tears in the myocardium.

Concerning the morphologic effects of prolonged muscular exercise on the heart, there is less agreement than concerning the immediate physiologic effects.

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[*] From the Department of Clinical Medicine, University of Wisconsin.

[*] Owing to limitations of space, this article has been abbreviated in The Journal. The complete article appears in the authors' reprints, a copy of which will be sent by the authors or by The Journal on receipt of a stamped addressed envelope.

[1] Von Frey, 1890; Kaufmann, 1892; Christ, 1894; Lewy and Zuntz and Schubray, 1896; Staehelin, 1900; Bowen, 1903; De la Camp, 1904; Gordon, Norris, 1907; Dietlen and Morwitz, Hornung, Krone, Moritz, Schott, 1908; Barach, 1910; Hooker, Lowsley, 1911; Grober, Albu and Katz and Leyhoff, 1913.

[2] The extent of increase of systolic pressure depends on the exercise, the individual and his condition. In young men sprinting on a stationary bicycle, Lowsley found the time for reaching the maximum systolic pressure to vary from five to twenty-five minutes and the increase to vary from 10 to 65 mm. Hg. It was greatest when the man was fresh. The average rise in sixteen men was 32.7 mm. Hg.

[3] In Lowsley's work, cited above, the rise in the diastolic pressure varied from zero to 40 mm. with an average in seventeen individuals of 22.9 mm. Hg.

[4] In Lowsley's experiment the average time for reaching the maximum pulse-rate was 35.4 minutes. The average increase of pulse-rate in nine experiments was 51 per minute.

Acute cardiac dilatation may occur during sudden severe muscular effort or after an endurance contest. In the former case, the general contraction of the voluntary muscles quickly forces a large amount of blood toward the heart through the veins; that is, increases venous pressure. *At the same time, the muscular contraction* reduces the lumen of the arteries and arterioles in their substance, to some extent forcing the blood back into the arteries, and thus gives rise to a sudden increase in peripheral resistance. This is further relatively and absolutely augmented by the increase in cardiac activity, both giving a high arterial pressure. During the violent effort the glottis is closed and great expiratory pressure is put on the thorax with the result that intrathoracic pressure is raised. This undoubtedly interferes with free cardiac activity, but nevertheless, may be temporarily compensatory, in that it offers support to the myocardium in its resistance to the increased venous pressure. In spite of the increased intrathoracic pressure, venous-pressure increase puts a strain on the heart-muscle. If its tone be good, the strain stimulates the heart to strong contraction. If not, the heart dilates. Acute dilatation is especially frequent after a sudden severe strain. In short speed contests we have similar conditions; but here the muscles, as they rhythmically relax, offer a decreased peripheral resistance and greater opportunity for the flow of blood from the heart.

In endurance contests, on the other hand, the respiratory rate is quickened and greater freedom is given to the cardiac action. The venous pressure is less and does not need to be resisted by a high intrathoracic pressure. Indeed, belts, bands and clothing interfering with free breathing are especially liable to put an overstrain on the heart. On the other hand, the prolonged rapid action of the heart brings about a condition of fatigue which lowers the tone and increases the liability to acute dilatation. This may result some time after the causative fatiguing contest in a person under only slight exertion at the time of collapse.

Acute cardiac dilatation has occurred in three members of University of Wisconsin athletic teams, as compared with one non-athlete in a period of two years. During this period there were about 4,000 male students in attendance during the regular session of the university and not over 200 men active in the major sports. The frequency of acute dilatation among the athletes was therefore sixty times as great as among the non-athletes. A report of the cases follows:

CASE 1. (0802).—This is an interesting example of a murmur persisting over a year. It occurred in a man aged 24. The only previous medical or social history having a bearing on the present condition was an attack of "grip" three weeks before the present trouble began. Examination in October, 1910, was negative as to the cardiovascular system. Subsequently the patient had been a member of the crew for a year and a half and had had one year of football. Jan. 30, 1912, he skated most of the afternoon, rowed on the machine for fifteen minutes, came down to the shower-bath quite exhausted, stood under the hot shower for five minutes, and was just about to turn on the cold water when he felt the attack coming on; he put out his hands to support himself and fell unconscious to the floor; he had no convulsive movements, no biting of the tongue, and no involuntary passage of urine or feces. He was examined the next day and the following data obtained: Pulse 84, fairly strong and somewhat irregular. Heart ¼ inch out to the left of the midclavicular line. Accentuated pulmonic second sound, action irregular. Feb. 26, 1912: Apex, sixth interspace plus ½ inch to the left of the midclavicular line. Pulsation in the third and fourth interspaces. Enlarged ½ inch to the right and the same distance to the left and above to the lower border of the second rib. First sound murmurish, no musical element; second sound snapping; at end of first sound the click of the right auriculoventricular valve being heard. Case diagnosed by Dr. J. S. Evans as dilatation with secondary hypertrophy of the heart, and relative insufficiency.

A number of examinations have been made since that time; the last, April 16, 1913, showed: pulse 90; apex, diffuse, sixth interspace. Heart enlarged ¼ inch to the right, plus ½ inch to the left. First sound poor in muscular quality and of a rumbling nature, giving the suggestion of a "run." Action quite irregular. Pulmonic second sound accentuated.

CASE 2 (1361).—The patient was examined March 27, 1912, and found to have hypertrophy or enlargement ¼ inch to right of sternum and ¼ inch to left of midclavicular line. First sound was not of strong muscular quality. Second sound was good. The patient's fourth year in distance runs in the university found him in this condition. The following was his experience on May 31, 1912, during a mile race: "It was the last lap and I was feeling as fine as I have ever felt. I was running even with the first man and just put on an extra spurt to pass him as I had done in every other race, when *suddenly everything grew dark. For the rest of the* race, I was semiconscious. In fact, I know nothing of the remainder, but the fellows say that I started to sway and stagger, lost my speed, would then straighten out again and thus finished the race in fifth place; I fainted as soon as I crossed the line, had to be carried from the track; was laid on the grass and slowly recovered. Then cramps in stomach began." June 4, 1913, the patient experienced marked abdominal cramps with marked hepatic congestion; the liver was palpable ¾ inch below the costal margin. June 6, 1912, the liver had returned to normal but there was still an audible apical systolic whiff. March 1, 1913, the rate was 72. The apical impulse consisted of two distinct separate thrusts. Heart dulness was enlarged ¾ inch to left and ¼ inch to right. There were no murmurs.

CASE 3 (1475).—The patient had had four years high school and three years university competition at long-distance running. The heart was examined Oct. 7, 1910. The upper border was at the third rib; the right border at the right border sternum; the left border at the fifth interspace ½ inch outside the midclavicular line. The cardiohepatic angle was fairly acute. The first sound was loud and booming, with no murmurs. The second sound was accentuated and ringing in character. The case was diagnosed as hypertrophy of the left ventricle; the right heart apparently normal.

In the spring of 1911, while training for long distance work, the patient first noticed pain in the hepatic and splenic regions. Examination of the heart before exertion showed little change from conditions described above. After severe exertion the heart boundaries were found to be increased 1 inch to the right and ½ inch to the left; the cardiohepatic angle was obtuse and the liver dulness increased; murmurs appeared at the mitral, pulmonic and tricuspid areas. The heart did not regain its normal condition until twenty-four hours later. The patient was advised to discontinue competitive sports, *but after three weeks' idleness he attempted a mile in moderate* time and fell over with acute dilatation. Examination showed the heart boundaries increased 1½ inches to the right of the sternum and ½ inch to the left of the midclavicular line at the fifth interspace. The cardiohepatic angle was obtuse. There were weak first and second sounds accompanied by a faint murmur. The liver and spleen were enlarged.

The increased cardiac area and other signs gradually subsided during the next two weeks, but four months later the right heart still exhibited signs of dilatation with compensatory hypertrophy. Following this break in compensation the patient became very susceptible to acute infections.

This case is an example of a heart overworked for several years, finally showing signs of breaking compensation under training and giving away more severely after a limited period of rest followed by sudden strain.

Case 4 (4004).—This was a case of acute cardiac dilatation in a young man who had not undergone athletic training. At the first examination, Oct. 5, 1911, the heart boundaries were: left, fifth interspace ¼ inch within the midclavicular line; upper boundary, third interspace; right border on sternum. The cardiohepatic angle was acute. The pulse-rate was 96. Restricted exercise was recommended. The student, however, felt that he should take active exercise and, while running on the track at the gymnasium, Nov. 14, 1911, was suddenly attacked by acute cardiac dilatation, marked by syncope, dyspnea and nausea. The sputum was blood-tinged. The heart boundaries were as follows: apex, in the fifth interspace, midclavicular line; upper boundary, third interspace; right boundary, 1 inch to the right of the sternum. The cardiohepatic angle was obtuse. The patient did not regain normal cardiac condition until February, 1912.

Chronic sinusitis may be taken as a possible predisposing factor in the case. No other factor in the patient's previous history seems to have a bearing on the acute dilatation, with the exception of the strenuous exercise which he took with the idea of improving his health.

From this review of the immediate effects of severe muscular exercise on the heart, we conclude that:

1. Normally, during severe muscular exertion, there is an increase of pulse-rate, arterial and venous blood-pressure, pulse-pressure and of the systolic output of blood.

2. In the period immediately following, there is a fall of pulse-rate to normal, and of arterial blood-pressure, pulse-pressure and, frequently, of the diastolic size of the heart to below normal.

3. Increased diastolic distention during violent effort may reach a point beyond the capacity of the heart-muscle to bring about a complete systole. This results in the typical symptoms of acute cardiac dilatation. The weakened condition of the cardiac muscle is shown after the cessation of bodily effort by its inability to contract to its normal size or below. This precludes all possibility of obtaining the rest needed after the strain of increased diastolic expansion and systolic contraction prevalent in very active exercise.

4. Clinically, it is well known that infectious diseases predispose to myocardial weakness and to acute dilatation. Experimentally, de la Camp has shown that starvation, likewise, so predisposes. Some authors[7] doubt if there be non-pathologic hearts with a musculature so weak that it can be strained sufficiently by muscular exertion to dilate acutely. Case 2 (1361) appears to indicate that at least chronic overstrain may weaken the myocardium to this extent.

5. At present we have no definite means of judging by clinical tests whether or not an untried apparently normal heart is capable of standing the strain of athletic contests. Some weak hearts remain dilated after a relatively slight exertion and are, therefore, clearly without adequate tone to withstand the severe strain. On the other hand, hearts known to be diseased may respond in the normal manner by contracting slightly after the cessation of moderate exercise. Hearts that give distinct systolic murmurs may withstand a Marathon race better than hearts apparently much more normal (Barach).

6. Extreme care should be given to the examination of the heart before and after moderate exercise in all who desire to enter severe athletic contests. Failure of normal reaction should bar any one from such contests. Even those withstanding these contests well should have the heart examined at frequent intervals during their training to avoid overstrain. Many men weaken the heart-muscle, instead of strengthening it, by continued overstraining. Riviere's, 1909, observations on the effect of prolonged overstrain on young boys, which he found to result in the production of persistent cardiac changes, should serve as a special warning in care of the young.

7. Infectious diseases are especially liable to weaken the myocardium. For this reason, severe athletic contests should be avoided by sufferers with, or convalescents from, acute infectious diseases, even of so mild a nature as tonsillitis or grip. "To work a cold off" by severe exercise is dangerous advice.

The question next naturally arises as to the condition of the heart in athletes who pass through one or more seasons of training and athletic contests without obvious symptoms of cardiac trouble.

To determine the extent of cardiac alterations in athletes at the University of Wisconsin, we have made an examination of the hearts of forty-five athletes who have taken part in major sports at the university, and for the sake of control have examined the hearts of twenty non-athletic students. In both cases we have been guided in our selection merely by the desire to pick out men whose social and medical history gives no reason for assuming that extraneous factors have altered the normal structure or functioning of the heart. The results are summarized in the accompanying tables and are illustrated by the drawings. In the tables there is given for each student, first, the filing number under which his records are kept at the office of the medical adviser and date of examination; then in turn his age, height, weight; habits in the use of tea and coffee, alcohol and tobacco; medical history with respect to tonsillitis, chorea and acute rheumatic fever (in no case were there physical signs or a history of venereal disease); a statement as to whether the heart had previously been found normal and, if so, when; athletic history; the rate of beat of the heart before and after fifty running steps; systolic and diastolic blood-pressure, and the pulse-pressure at rest, sitting. Except where indicated the students were not "in training" at the time of the examination.

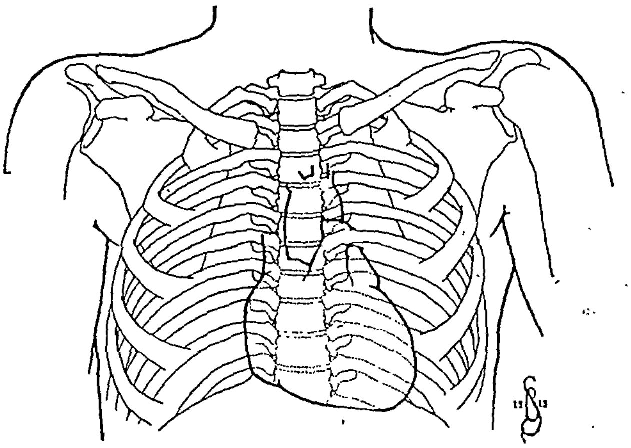

Fig. 1.—Non-athlete 4119.

Of the thirty-six men examined who have been active in college athletics, all showed cardiac hypertrophy. This was especially marked in most of the prominent college athletes. Figures 3 to 7 illustrate the hypertrophy as revealed by roentgenography. A ventrodorsal roentgenogram was made in each case with the tube

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[7] Hoffmann, 1901; von Criegern, 1902; Starck, 1905; Selig, 1905, 1907; de la Camp, 1904.

0.75 meters above the center of the sternum. From the photographic plate a careful drawing was made. Care was taken to make the outline of the cardiac shadow as accurate as possible. After careful study a few details not clearly visible in the roentgenograms have been added to the figures of the heart in order to indicate the approximate position of auricles, ventricles and great vessels; the part of the heart hidden in the shadow of the liver and diaphragm has also been added; but these details, unlike the general outline of the heart shadow, are merely approximate. The skeletal outlines and the outlines of the body have also in places been filled out where not coming on the photographic plate or not quite clear; but in all such cases the attempt has been made to make such outlines as accurate as possible. Lines which have been added for the sake of completing the picture in no case affect the relative position of the outline of the cardiac shadow as compared with the size of the thorax.

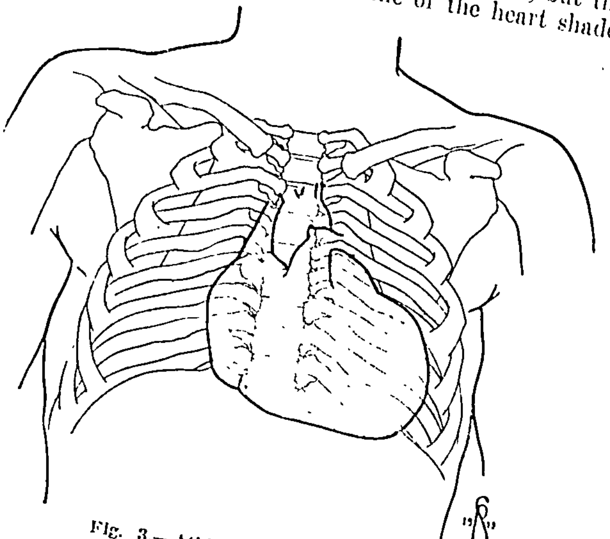

Fig. 3.—Athlete 1574 (Table 3).

Figure 1 shows the heart of a normal non-athletic man of sedentary habits (No. 4109 in Table 1). Figures 3 to 7 show the hearts of Athletes 1574, 0633, 0090 and 2148 in Table 3, and of No. 0802 in Table 6.

Figure 3 (No. 1574) is from a roentgenogram of an athlete active several years, two at the university, in foot-ball and basket-ball. The picture was taken in the spring of 1913 after the close of the basket-ball season.

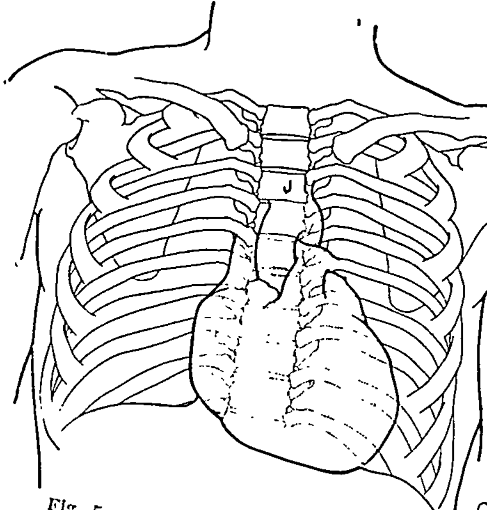

Fig. 5.—Athlete 0802 (Case 1; Table 6).

In October, 1911, no enlargement of the heart and no functional irregularities were noted on physical examination. The pulse at this time was 68 at rest. In October, 1912, some cardiac hypertrophy was noted. At the time the roentgenogram was taken this hypertrophy was more marked and the pulse-rate at rest had fallen to 48. There was slight irregularity in the action of

TABLE 1.—GROUP 1, CONTROL: NO ACTIVE SPORTS OR TRAINING

| Filing No.* | Date of Examination | Age | Height, Ins. | Weight, Lbs. | Use of: Tea | Use of: Coffee | Use of: Alcohol | Use of: Tobacco | History: Tonsillitis | History: Chorea | History: Rheumatism | Heart Normal | Pulse-Rate: Before | Pulse-Rate: After | Pulse-Rate: Percentage Increase | Blood-Pressure: Systolic | Blood-Pressure: Diastolic | Blood-Pressure: Pulse-Press. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8774 ........ | 9/—/13 | 18 | 68 | 114.8 | + | 0 | 0 | 0 | 0 | 0 | 0 | 9/—/13 | 94 | 116 | 23.4 | 102 | 78 | 24 |
| 8800 ........ | 9/—/13 | 22 | 66 | 106.5 | + | + | + | + | 0 | 0 | 0 | 9/—/13 | 96 | 114 | 18.7 | 112 | 86 | 26 |
| 8816 ........ | 9/—/13 | 19 | 61.9 | 166.3 | + | + | 0 | 0 | 0 | 0 | 0 | 9/—/13 | 88 | 116 | 31.8 | 108 | 82 | 26 |
| 8813 ........ | 9/—/13 | 18 | 66 | 126 | + | 0 | 0 | 0 | 0 | 0 | ? | 9/—/13 | 80 | 120 | 50 | 122 | 90 | 32 |
| 8782 ........ | 9/—/13 | 18 | 62.8 | 115.3 | + | + | 0 | 0 | + | 0 | 0 | 9/—/13 | 84 | 112 | 33.3 | 114 | 92 | 22 |
| 4109 ........ | 9/—/13 | 23 | 69.6 | 143 | 0 | 0 | 0 | 0 | ? | 0 | 0 | 9/—/13 | 84 | 120 | 42.8 | 100 | 68 | 32 |
| 8834 ........ | 9/—/13 | 25 | 63.6 | 123 | 0 | + | + | 0 | 0 | 0 | 0 | 9/—/13 | 72 | 98 | 36.1 | 130 | 90 | 40 |
| 8934 ........ | 9/—/13 | 20 | 67.4 | 116 | + | + | 0 | 0 | 0 | 0 | 0 | 9/—/13 | 84 | 112 | 33.3 | 110 | 78 | 32 |
| 8948 ........ | 9/—/13 | 19 | 62.2 | 116.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9/—/13 | 80 | 112 | 40 | 104 | 80 | 24 |
| 0724 ........ | 4/—/13 | 18 | 70.8 | 163.5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 9/—/12 | 60 | 88 | 46.6 | 114 | 72 | 42 |
| 2927 ........ | 4/—/12 | .. | .... | .... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9/—/12 | 70 | 80 | 14.2 | .. | .. | .. |
| 2344 ........ | 4/—/12 | 21 | 69.5 | 136.3 | + | 0 | 0 | + | 0 | 0 | 0 | 9/—/12 | 80 | 100 | 25 | 130 | 90 | 40 |
| 3039 ........ | 4/—/12 | 23 | .... | .... | + | 0 | 0 | 0 | 0 | 0 | 0 | 9/—/12 | 72 | 100 | 38.8 | .. | .. | .. |
| 2450 ........ | 11/—/13 | 21 | 67.5 | 150.2 | 0 | + | + | 0 | + | 0 | 0 | 10/—/11 | 80 | 100 | 25 | 108 | 80 | 28 |
| 10321 ........ | 11/—/13 | 22 | 68 | 143 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10/—/13 | 72 | 100 | 38 | 120 | 88 | 32 |
| 4326 ........ | 11/—/13 | 29 | 66.5 | 120.7 | + | 0 | 0 | 0 | + | 0 | 0 | 10/—/13 | 72 | 96 | 26 | 102 | 76 | 26 |
| 5698 ........ | 11/—/13 | 27 | 69 | 155 | + | + | + | + | 0 | 0 | 0 | 11/—/13 | 84 | 108 | 28 | 112 | 82 | 30 |
| 4088 ........ | 11/—/13 | 19 | 65 | 134 | 0 | + | 0 | 0 | 0 | 0 | 0 | 11/—/13 | 88 | 118 | 34 | 108 | 74 | 34 |
| 4243 ........ | 11/—/13 | 21 | 68 2 | 130.4 | + | + | 0 | 0 | 0 | 0 | 0 | 10/—/11 | 72 | 100 | 41 | 118 | 80 | 38 |
| 8450 ........ | 11/—/13 | 21 | .... | .... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10/—/10 | 70 | 92 | 32 | 108 | 72 | 36 |
| Average ....... | ........ | 22.3 | 67.2 | 137.7 | .. | .. | .. | .. | .. | .. | ........ | 77 | 103 | 33.7 | 111.1 | 79.4 | 31.8 | |

* Special notes on Group 1:
0724: Exercise develops accentuation of aortic and pulmonic seconds.
2927: Moderate athlete; no training.
2344: No active sports; moderate light work.

the heart, but the man had had no subjective symptoms of cardiac distress during or after athletic contests. As may be seen from the roentgenogram the enlargement is marked in both the right and left sides, and there has undoubtedly been dilatation as well as hypertrophy.

Figure 5 is from an athlete (No. 0802) who rowed for one and a half years in college. In September, 1910, no marked cardiac hypertrophy was noted. The pulse-rate was 60. In January, 1912, while training for the crew, he suffered from acute dilatation of the heart as previously described in Part I. After this experience no further athletic training was attempted. The student was left as much at rest as his academic pursuits would permit and under careful medical observation. In the spring of 1913 cardiac disturbance was still quite marked. The pulse-rate at rest was 100, and after fifty stationary running steps it rose to 135. There were subjective feelings of palpitation at times. As may be seen from the roentgenogram, there is still marked evidence of hypertrophy together with dilatation particularly of right heart.

In none of the cases cited has there been a history of infectious disease or other trouble to which a weakening of the heart might be ascribed.

TABLE 2.—GROUP 2, ATHLETES: "NORMAL" HEARTS

| Filing No.* | Date of Examination | Age | Height, Ins. | Weight, Lbs. | Use of | | | | History | | | Heart Normal | Number of Years in | | | | | Pulse-Rate | | | Blood-Pressure | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Tea | Coffee | Alcohol | Tobacco | Tonsillitis | Chorea | Rheumatism | | Crew | Track | Baseball | Basket-Ball | Football | Before | After | Percentage Increase | Systolic | Diastolic | Pulse-Press. |
| 1066 ....... | 4/—/13 | 18 | 74 | 170 | 0 | 0 | M. | + | 0 | 0 | 0 | 9/26/12 | 1.5 | 0 | 0 | 0 | 0 | 84 | 108 | 28.5 | 127 | 90 | 37 |
| 2917 ....... | 4/—/13 | 24 | 72.5 | 174.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10/—/10 | 2 | 0 | 0 | 3 | 3 | 84 | 100 | 19 | 120 | 90 | 30 |
| 1177 ....... | 4/—/13 | 27 | 72 | 175 | + | + | 0 | + | 0 | 0 | 0 | 10/—/11 | 1 | 0 | 0 | 0 | 0 | 78 | 104 | 33.3 | 120 | 90 | 30 |
| Average .... | ........ | 23 | 72.8 | 173.3 | .. | .. | .. | .. | .. | .. | .. | ........ | .. | .. | .. | .. | .. | 82 | 104 | 26.9 | 122.3 | 90 | 32.3 |

* Special notes on Group 2:
2917: Examination at time of test revealed enlargement ¼ inch to left.
1177: Enlarged area of cardiac dulness ½ inch to left.

TABLE 3.—GROUP 3, ATHLETES: CARDIAC HYPERTROPHY WITH SLOW ACTION

| Filing No.* | Date of Examination | Age | Height, Ins. | Weight, Lbs. | Use of | | | | History of | | | Heart Normal | Number of Years in | | | | | Pulse-Rate | | | Blood-Pressure | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Tea | Coffee | Alcohol | Tobacco | Tonsillitis | Chorea | Rheumatic Fever | | Crew | Track | Baseball | Basket-Ball | Football | Before | After | Percentage Increase | Systolic | Diastolic | Pulse-Press |
| A. WITHOUT MURMURS | | | | | | | | | | | | | | | | | | | | | | | |
| 1574 ....... | Apr., 1913 | 22 | 65 | 168 | + | + | 0 | 0 | 0 | 0 | 0 | Oct., 1911 | 0 | 0 | 7 | 6 | 6 | 48 | 76 | 53.3 | 116 | 85 | 31 |
| 0633 ....... | Apr., 1913 | 22 | 73 | 195 | + | + | M. | 0 | 0 | 0 | 0 | Oct., 1910<br>Oct., 1911 | 0 | 0 | 0 | 7 | 7 | 60 | 84 | 40 | 132 | 100 | 32 |
| 2148 ....... | Apr., 1913 | 22 | 71 | 180 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | Oct., 1910<br>Oct., 1911 | 3 | 0 | 0 | 0 | 0 | 54 | 76 | 40.7 | 136 | 105 | 31 |
| 0939 ....... | Apr., 1913 | 21 | 66 | 157 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9/18/11 | 0 | 6 | 0 | 0 | 0 | 78 | 84 | 7.7 | 126 | 96 | 30 |
| 0090 ....... | Apr., 1913 | 21 | 69 | 195 | 0 | + | 0 | 0 | 1 | 0 | 0 | Oct., 1910<br>Oct., 1911 | ½ | 2 | 0 | 0 | 6 | 60 | 84 | 40 | 122 | 90 | 32 |
| 3214 ....... | Apr., 1913 | 24 | 72 | 185 | + | + | + | M. | 0 | 0 | 0 | † | ½ | 0 | 0 | 0 | 1 | 60 | 84 | 40 | 132 | 100 | 32 |
| 0640 ....... | Apr., 1913 | 24 | 71.8 | 183 | + | + | 0 | M. | 0 | 0 | 0 | † | 4 | 0 | 0 | 0 | 4 | 54 | 78 | 44.4 | 116 | 80 | 36 |
| 1663 ....... | Apr., 1913 | 22 | 69.3 | 131 | + | + | 0 | 0 | + | 0 | 0 | Sept.1911 | 0 | 4 | 0 | 0 | 0 | 60 | 78 | 30 | 110 | 91 | 19 |
| B. MURMURS AFTER TEST | | | | | | | | | | | | | | | | | | | | | | | |
| 3137 ....... | Apr., 1913 | .. | 69.3 | 170 | + | + | 0 | 0 | 1 | 0 | 0 | † | 1½ | 0 | 0 | 0 | 0 | 60 | 84 | 40 | ... | ... | .. |
| 0782 ....... | Apr., 1913 | 20 | 66.5 | 115.8 | 0 | 0 | 0 | + | 0 | 0 | 0 | † | 1½ | 0 | 0 | 0 | 0 | 72 | 84 | 16.6 | 146 | 104 | 42 |
| Average .... | ........ | 22 | 69.3 | 166.9 | .. | .. | .. | .. | .. | .. | .. | ...... | .. | .. | .. | .. | .. | 60.6 | 81.6 | 35 | 126.2 | 94.6 | 31.6 |

* Special notes on Group 3:

1574: No hypertrophy in October, 1911; pulse-rate 68. In October, 1912, enlarged ¼ inch to left. February, 1913, action irregular boundaries; upper border second rib; 1½ inches to left of the midclavicular line 1 inch to right of sternum.

0633: Diffuse apical impulse. Cardiac dulness enlarged 1¼ inch to left and ½ inch to right. Accentuated pulmonic second.

2148: Enlarged ¼ inch to left. Muscular sound, sharp. Pulmonic first, rough.

0939: Enlarged 1 inch to left and ½ inch to right. Pulmonic second accentuated. Carried off field twice after relay races.

0090: October, 1910, rate 92; October, 1911, 80 with no hypertrophy. September, 1912, enlargement ¾ inch to left. March, 1913, rate 60, enlarged 1½ inch to left and ½ inch to right.

3214: No enlargement. Some irregularity, which on exertion is increased, a number of beats being dropped on deep inspiration.

0640: Hypertrophy on two previous examinations. At present, enlarged just to right of sternum and ½ inch to left of midclavicular line.

NOTE—Development of a mitral murmur later in training period caused dropping from crew.

1663: Some hypertrophy in September, 1912. At present, enlarged ¾ inch to left and ¼ inch to right.

3137: Enlarged ½ inch to left. On exertion, develops a soft systolic murmur audible over entire pericardium but with maximum intensity at apex.

0732: At examination in October, 1910, 1911 and 1912, cardiac enlargement was found. October, 1912, displayed doubtful untransmitted mitral murmur. Latest examination gave systolic thrill. Apex sixth interspace plus ¼ inch to left of midclavicular line; no murmur before exercise, but a distinct "murmurishness" develops in third and fourth interspaces to left of sternum on exertion. First sound booming; second pulmonic markedly accentuated.

†No record.

Functionally, the hearts of athletes may be grouped into several classes: (1) physiologically hypertrophied hearts, Group 2, Table 2; (2) dilated and hypertrophied hearts with slow rate of beat and good compensation, sometimes, however, showing some arhythmia or murmur after exercise, Group 3, Table 3; (3) dilated and hypertrophied hearts with a pulse-rate greatly increased on slight exertion, Group 4, Table 4; (4) dilated and hypertrophied hearts with a murmur before and after exercise, a relatively high pulse-rate, usually much increased by exercise, Group 5, Table 5; (5) hearts convalescent from acute dilatation, Group 6, Table 6, and hearts showing lesions several years after ceasing athletic training, Group 7, Table 7.

In Table 1 are given data concerning the twenty nonathletes examined for the purpose of control. Figure 1 illustrates the heart of a student of this type. The systolic blood-pressure averaged 111.1, the pulse-pressure 31.8 and the pulse-rate showed an average increase after fifty running steps of about 33.7 per cent.

In Table 2 are given data concerning the relatively few athletes trained for major sports whose hearts appeared to be essentially like those used to a considerable amount of moderate exercise. In these men, however, there was somewhat more cardiac hypertrophy and a suggestion in most cases of some dilatation as well as hypertrophy. The sounds were normal. Both the systolic blood-pressure and the diastolic pressure averaged considerably higher than in those in Table 1. The pulse-pressure was about the same. The increase in the pulse-rate after fifty running steps was less marked.

In Table 3 are given data concerning a group of athletes with dilated hearts in which the compensatory hypertrophy had produced a myocardium that gives a slow, strong beat which, as a rule, does not quicken greatly after fifty running steps. The blood-pressure is frequently relatively low. Many of the best college athletes belong in this group. Compensation is excellent, although occasionally there is slight arhythmia, and in two cases there was a slight mitral murmur after the test. Figures 3, 4, 5, and 6 illustrate the type of heart here described.

In Table 4 are given data concerning a group of athletes with dilated, hypertrophied, irritable hearts. The most marked characteristics of the hearts of these men is the remarkable jump in pulse-rate shown after fifty running steps, the jump averaging 55.2 per cent. of the rate before the test. Frequently there is also a slight arhythmia. The blood-pressure is relatively high, the pulse-pressure somewhat lower than the normal. It is probable that men with this type of heart run considerable danger of acute dilatation. It is evident that compensatory hypertrophy is less perfect than in the preceding class.

In Table 5 are given data concerning a group of athletes with dilated hypertrophied hearts with a well-marked mitral murmur. They have a relatively high pulse-rate and, in most cases, show a high increase after fifty running steps. Systolic pressure is not so high as in the preceding group. The pulse-pressure, as a rule, is nearly normal. Some of the men here tabulated will probably acquire by compensatory hypertrophy a thicker myocardium, the pulse will become slower and the mitral murmur disappear. Others will approach the irritable type with rapid pulse on exertion, and these also may, by the decreased diastole, lose the mitral murmur.

TABLE 4.—GROUP 4. IRRITABLE HYPERTROPHIED HEARTS IN ATHLETES

| Filing No.* | Date of Examination | Age | Height, Ins. | Weight, Lbs. | Use of |  |  |  | History of |  |  | Heart Normal | Number of Years in |  |  |  |  | Pulse-Rate |  |  | Blood-Pressure |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  | Tea | Coffee | Alcohol | Tobacco | Tonsillitis | Chorea | Rheumatic Fever |  | Crew | Track | Baseball | Basket-Ball | Football | Before | After | Percentage Increase | Systolic | Diastolic | Pulse-Press. |
| A. SHORT PERIOD OF TRAINING |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0928 ....... | 4/—/13 | 22 | 67.3 | 135.5 | M. | M. | 0 | 0 | 0 | 0 | ? | 10/—/11 | 0 | 1 | 0 | 0 | 0 | 60 | 110 | 83.3 | 120 | 80 | 40 |
| 3135 ....... | 4/—/13 | 19 | 70 | 170 | 0 | + | 0 | 0 | 0 | 0 | 0 | 10/—/12 | ¾ | 0 | 0 | 0 | 0 | 72 | 96 | 33.3 | 138 | 100 | 38 |
| 2132 ....... | 4/—/13 | 25 | 70 | 160 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | † | 0 | 0 | 2 | 0 | 0 | 72 | 96 | 33.3 | 136 | 104 | 32 |
| 3028 ....... | 4/—/13 | 18 | 72 | 186.3 | + | + | 0 | 0 | 0 | 0 | ? | 10/—/12 | 1 | 0 | 0 | 0 | 0 | 64 | 96 | 50 | 114 | 78 | 36 |
| B. LONG TRAINING |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2798 ....... | 4/—/13 | 21 | 72.8 | 191 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9/—/12 | 1 | 0 | 0 | + | 0 | 70 | 120 | 71.4 | ... | ... | .... |
| 3100 ....... | 4/—/13 | 19 | 73.5 | 185 | + | + | 0 | M. | 0 | 0 | 0 | † | 3 | 0 | 0 | 0 | 3 | 68 | 112 | 64.7 | 128 | 85 | 43 |
| 0800 ....... | 4/—/13 | 21 | 71 | 173 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 10/—/11 | 1½ | 0 | 0 | 0 | 2 | 72 | 120 | 66.6 | 141 | 110 | 31 |
| 2663 ....... | 4/—/13 | 28 | 71.5 | 171.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | † | 3½ | 0 | 0 | 0 | 0 | 84 | 120 | 42.8 | 144 | 100 | 44 |
| 1838 ....... | 4/—/13 | 20 | 71.5 | 168.5 | + | + | 0 | + | 1 | 0 | 0 | † | 0 | 0 | 3 | + | + | 84 | 128 | 40.4 | 158 | 108 | 50 |
| 1284 ....... | 4/—/13 | 21 | 70.5 | 160 | + | + | 0 | 0 | 1 | 0 | 0 | 9/—/12 | ½ | 0 | 0 | 0 | 2 | 78 | 120 | 53.5 | 142 | 110 | 32 |
| 0159 ....... | 4/—/13 | 20 | 71 | 171.8 | + | + | 0 | 0 | 0 | 0 | 0 | † | 1½ | 0 | 0 | 0 | 0 | 84 | 142 | 68.9 | 132 | 102 | 30 |
| 3057 ....... | 4/—/13 | 21 | 70 | 155.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | † | 1½ | 0 | 0 | 0 | 0 | 80 | 120 | 50 | 120 | 90 | 30 |
| Average .... | ........ | 21¼ | 70.91 | 168.97 | .. | .. | .. | .. | .. | .. | .. | ....... | .. | .. | .. | .. | .. | 76.8 | 115 | 55.2 | 133 | 97 | 34.1 |

* Special notes on Group 4:

0928: Slight enlargement to left; before exercise heavy first sound, becoming impure on exercise. Pulmonic second accentuation. After exertion, some irregularity.

3135: Enlarged ½ inch to left. Decided irregularity of pulse for two minutes after test.

3028: Enlarged ½ inch to left. Aortic second snapping.

2798: Before exercise, cardiac dulness extended ½ inch to left of midclavicular line; which enlargement is increased ¼ inch by exertion. Accentuated pulmonic second.

3100: September, 1912, enlarged ¼ inch both to right and to left. Later examination shows enlargement ¾ inch to left and ¼ inch to right. Pulmonic second accentuated.

2663: October, 1910, enlargement ½ inch to left.

1838: October, 1912, aortic systolic murmur transmitted to neck. At present, action irregular; exercise increases area of dulness perceptibly to left of midclavicular line and develops an apical systolic murmur heard all over precordium.

1284: Enlarged ½ inch to left; action irregular; aortic and pulmonic second sounds accentuated. Exercise develops decided impurity of mitral first.

0159: October, 1911, enlarged ¼ inch to left; now ¾ inch to left.

3057: October, 1911, enlarged ½ inch to left.

† No record.

In Table 6 are shown the results found in two hearts several months after acute cardiac dilatation. In one heart, eleven months after the dilatation, the compensation is already good. In the other heart, fifteen months after the acute dilatation, the pulse-rate is high, the pulse-pressure is low and there is still a mitral murmur.

In Table 7 are classed those men who, at one time active in competitive sports, have had no training for a period of at least one year. Most of these are old high-school athletes. Of the seven men, all show either valvular murmurs or marked departure from the normal heart-sounds. Five of the men in Group 7A show the same irritability as those in Group 5. These data tend to prove that the abnormalities developed by severe competitive sports persist in many cases.

Our studies show that while acute *cardiac dilatation of an immediate* serious nature is not so frequent as one might expect among college athletes, marked cardiac hypertrophy is the rule rathen than the exception, and that in a considerable percentage of cases functional disturbance of a more or less serious nature accompanies the hypertrophy.

The marked cardiac lesions found in so large a proportion of our college athletes present a serious problem, especially at a time when physical training is extending from the colleges to the secondary schools and the popular idea of a good physical trainer is so often the man who can turn out winning teams. While it is not desirable unduly to restrict healthy sports, on the other hand, the leaders in athletic sports should not be called on to sacrifice too much the future for the present. The tendency in boys from 14 to 18 to develop cardiac lesions which are transitory, if the heart is not at this time subjected to overstrain (see Krehl, p. 715) complicates the problem when extended to high-school athletes.

There seems reason to believe that at present there is an increase in cardiovascular disease in this as in most civilized countries. The relations of violent muscular exertion to such diseases should be thoroughly understood. The college athlete represents a type of special interest in this connection. During violent athletic contests he is stimulated by the excitement of the crowd to exert himself far beyond the point of physical comfort. Between seasons and when out of training he is apt to lead a more or less sedentary life, and this becomes usually the case after his athletic career is over.

TABLE 5.—GROUP 5, ATHLETES: HYPERTROPHIED HEARTS, MURMUR BEFORE AND AFTER TEST

| Filing No.* | Date of Examination | Age | Height, Ins. | Weight, Lbs. | Use of | | | | History of | | | Heart Normal | Number of Years in | | | | | Pulse-Rate | | | Blood-Pressure | | | Nature of Murmur |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Tea | Coffee | Alcohol | Tobacco | Tonsillitis | Chorea | Rheumatic Fever | | Crew | Track | Baseball | Basket Ball | Football | Before | After | Percentage Increase | Systolic | Diastolic | Pulse-Press. | |
| 0139 ....... | 4/—/13 | .... | 71.5 | 173 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | † | + | 0 | 0 | 0 | 0 | 95 | 120 | 26.3 | 120 | 82 | 38 | Cardiorespiratory. |
| 2791 ....... | 4/—/13 | 23 | 69 | 121 | + | + | 0 | 0 | 0 | 0 | 0 | † | 0 | + | 0 | 0 | 0 | 62 | 80 | 29 | 130 | 95 | 35 | Soft mitral systolic, transmitted. |
| 1022 ....... | 4/—/13 | 24 | 71.5 | 166.5 | + | + | 0 | + | 0 | 0 | 0 | 9/—/12 | 1½ | 0 | 0 | 0 | 0 | .. | .. | .. | 122 | 96 | 26 | Systolic apical swish. |
| 0881 ....... | 4/—/13 | 22 | 64 | 130.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10/—/10 | 0 | 3 | 0 | 0 | 0 | 64 | 132 | 106.2 | 128 | 89 | 39 | Rough mitral systolic. |
| 3024 ....... | 4/—/13 | 20 | 72.5 | 166 5 | + | + | 0 | 0 | ? | 0 | 0 | 9/—/11 | 1½ | 0 | 0 | 0 | 0 | 72 | 100 | 38.9 | 132 | 90 | 42 | Systolic apical whiff. |
| 1053 ....... | 4/—/13 | 25 | 64 | 123.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10/—/11 | 0 | 2 | 0 | 0 | 0 | 72 | 106 | 47.2 | 119 | 88 | 31 | Cardiorespiratory, musical on expiration. |
| 1703 ....... | 4/—/13 | 20 | 68.5 | 182 | + | + | 0 | + | 1 | 0 | 0 | 9/—/12 | ½ | 0 | 0 | 0 | 1 | 73 | 114 | 46.1 | 128 | 97 | 31 | Cardiorespiratory. |
| 0004 ....... | 4/—/13 | 25 | 74 | 180 | + | + | 0 | + | 0 | 0 | 0 | 7/—/12 | 4 | 0 | 0 | 0 | 0 | 115 | 134 | 17.4 | 122 | 90 | 32 | Loud, blowing, mitral systolic, well transmitted. |
| 0843 ....... | 4/—/13 | 25 | 72.8 | 168 | 0 | + | 0 | + | 1 | 0 | 0 | 10/—/12 | 0 | 5 | 0 | 0 | 0 | 84 | 120 | 42.1 | 128 | 110 | 18 | Rough, systolic, mitral, transmitted. |
| 0573 ....... | 4/—/13 | 19 | 73.5 | 168.8 | 0 | + | 0 | 0 | 0 | 0 | 0 | 9/—/12 | 1 | 0 | 0 | 0 | 1 | 76 | 118 | 42.1 | ... | ... | .. | Mitral systolic, marked on exertion. |
| 2889 ....... | 4/—/13 | 22 | 72 | 173 | + | + | 0 | 0 | 0 | 0 | 0 | 9/—/11 | 1½ | 0 | 0 | 0 | 2 | 84 | 108 | 28.5 | 126 | 88 | 38 | Soft systolic, mitral on exertion. |
| 0093 ....... | 4/—/14 | 21 | 70.8 | 152.8 | + | 0 | 0 | 0 | 0 | 0 | 0 | † | 2½ | 0 | 0 | 0 | 0 | 84 | 100 | 19.6 | 108 | 90 | 18 | Soft systolic at base, untransmitted. |
| Average .... | ........ | 22.4 | 70.3 | 150.7 | .. | .. | .. | .. | .. | .. | .. | ....... | .. | .. | .. | .. | .. | 80.6 | 112.8 | 40.2 | 123.0 | 92.3 | 31.6 | |

*Special notes on Group 5:

0139: Marked accentuation of aortic second, murmurs more marked in dependent position. Now out for crew.

2791: Before exercise, enlarged ½ inch to left, action irregular and above-described murmur. After exercise, action is in form of peculiar "runs"; area of dulness enlarges ¼ inch to either side.

1022: Enlarged ¾ inch to left and ½ inch to right. Before exercise in erect posture, reduplication of first. "Swish" developed at apex on exertion.

0881: Enlarged ¾ inch to left. Muscular quality poor; action, irregular.

3024: Enlarged 1 inch to left and ¾ inch to right.

1053: Enlarged slightly to left and ½ inch to right; action irregular and first sound slurred. In addition to cardiorespiratory murmur mentioned in table, a soft untransmitted systolic murmur is heard in fourth left interspace. Coughing after exercise.

0004: Possible etiologic factor in production of endocardial murmur lies in the existence of sinus infection. Apex impulse in sixth interspace. Enlarged ¾ inch to left. Murmur heard is transmitted to axilla and well into back. Anginoid pains and gastro-intestinal symptoms.

0843: Enlarged ¼ inch to right and ½ inch to left. Poor muscular quality. Accentuated aortic second. Anginoid pains on exertion in training.

0573: No enlargement.

2889: September, 1912, showed hypertrophy ¾ inch to left. Now, before exertion enlarged ½ inch to left and ¼ inch to right. Area of dulness increases ¼ inch to left after test.

0093: Enlarged ½ inch to left and ¼ inch to right.

† No record.

The effects on the after-life of the members of the college crews at Oxford and at Harvard have given rise to several studies, but the results are not of much value in throwing light on the general problem. They show in general that the crew men have lived a few years longer than would have been expected from mortality tables used by life-insurance companies, but accurate medical details are wanting and we have as yet no good data on the life expectations of the picked classes from which the crew men have come. Perhaps the most significant tables are those of the Surgeon-General of the Navy, who reports six deaths in athletes from diseases attributable to athletic overstrain to one in non-athletes among the select lot of young men trained at Annapolis. It seems reasonable to assume that a young man whose athletic training had led to cardiac hypertrophy with some functional disturbance likely to increase when the large heart no longer has exceptional work to do, will be physically handicapped in life, to what extent, careful study of numerous men is necessary to show. It will be found not only in the field of cardiovascular diseases, but also in the decreased resistance which such men show to acute infections such as typhoid fever and pneumonia. Dr. Harlow Brooks in 1913, as medical officer of a regiment of the National Guard in New York, in which there are many college athletes from five to fifteen years out of college, has found the health of these men on the whole decidedly inferior to that of the other members of the regiment.

## CONCLUSIONS

1. Athletic training leads at first to physiologic hypertrophy of the heart; but when prolonged and marked by

TABLE 6.—GROUP 6, ATHLETES: ACUTE DILATATION

| Filing No.* | Date of Examination | Age | Height, Ins. | Weight, Lbs. | Use of |  |  |  | History of |  |  | Heart Normal | Number of Years in |  |  |  |  | Pulse-Rate |  |  | Blood-Pressure |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  | Tea | Coffee | Alcohol | Tobacco | Tonsillitis | Chorea | Rheumatic Fever |  | Crew | Track | Baseball | Basket-Ball | Football | Before | After | Percentage Increase | Systolic | Diastolic | Pulse-Press. |
| 2807 ....... | 5/—/13 | 23 | 70 | 142 | + | + | 0 | 0 | 0 | 0 | 0 | † | 0 | 4 | 0 | 0 | 0 | 72 | 84 | 16.6 | 122 | 95 | 27 |
| 0802 ....... | 4/—/13 | 24 | 73 | 172 | 0 | 0 | 0 | + | 0 | 0 | 0 | 9/—/10 | 1½ | 0 | 0 | 0 | 0 | 100 | 135 | 35 | 121 | 98 | 23 |
| Average .... | ....... | 23.5 | 71.5 | 157 | .. | .. | .. | .. | .. | .. | .. | ...... | .. | .. | .. | .. | .. | 86 | 109.5 | 25.8 | 121.5 | 96.5 | 25 |

* Special notes on Group 6:

2807: 3/27/12, some cardiac enlargement. 5/31/12, acute dilatation of heart. At present, two separate thrusts to apical impulse Enlarged ¾ inch to left and ¼ inch to right. Anginoid pains at times. Some digestive derangement.

0802: 1/30/12. Acute cardiac dilatation. Present examination points to existence of extra systoles. Enlarged ½ inch to left and ¼ inch to right. Mitral first consists of a number of interrupted sounds. Palpitation.

† No record.

TABLE 7.—GROUP 7, OLD ATHLETES: NO ATHLETIC TRAINING FOR AT LEAST A YEAR (CHIEFLY HIGH-SCHOOL ATHLETES)

| Filing No.* | Date of Examination | Age | Height, Ins. | Weight, Lbs. | Use of |  |  |  | History of |  |  | Heart Normal | Number of Years in |  |  |  |  | Pulse-Rate |  |  | Blood-Pressure |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  | Tea | Coffee | Alcohol | Tobacco | Tonsillitis | Chorea | Rheumatic Fever |  | Crew | Track | Baseball | Basket-Ball | Football | Before | After | Percentage Increase | Systolic | Diastolic | Pulse-Press. |
| A. MURMURS AND IRRITABLE HEART |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2891 ....... | Apr. 1913 | 22 | 71.5 | 155 | + | + | 0 | + | 0 | 0 | 0 | † | 0 | 0 | 0 | 0 | 1 | 78 | 110 | 41 | 116 | 84 | 32 |
| 3142 ....... | Apr. 1913 | 21 | 72 | 165 | + | + | 0 | 0 | 0 | 0 | 0 | † | 0 | 2 | 0 | 2 | 0 | 80 | 138 | 72.5 | 130 | 91 | 39 |
| 3151 ....... | Apr. 1913 | 30 | 69 | 185 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1903(?) | 0 | 0 | 0 | 0 | 4 | 80 | 138 | 72.5 | 160 | 90 | 70 |
| 2180 ....... | Apr. 1913 | 24 | 64.5 | 144 | + | + | + | + | 3 | 0 | 0 | † | 0 | 0 | 4 | 0 | 4 | 66 | 98 | 48.4 | 118 | 98 | 20 |
| 3032 ....... | Apr. 1913 | 19 | 70.8 | 167.8 | 0 | 0 | 0 | + | ? | 0 | 0 | † | 0 | 0 | 4 | 4 | 3 | 60 | 88 | 46.6 | 120 | 82 | 38 |
| B. MURMURS AND NON-IRRITABLE HEART |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2785 ....... | Apr. 1913 | 25 | 70.8 | 153 | + | + | 0 | + | 1 | 0 | 0 | † | 0 | 0 | M. | M. | 0 | 88 | 92 | 4.4 | 104 | 78 | 26 |
| 2792 ...... | Apr. 1913 | 19 | 69.5 | 139 | + | + | 0 | + | 0 | 0 | 0 | † | 0 | 2 | 0 | 0 | 0. | 80 | 100 | 25 | 128 | 95 | 33 |
| Average .... | ........ | 23 | 69.7 | 158.7 | .. | .. | .. | .. | .. | .. | .. |  | .. | .. | .. | .. | .. | 76 | 109 | 44.3 | 125 | 88.3 | 37 |

* Special notes on Group 7:

2891: Played football in 1909. Cardiac enlargement ¼ inch to left. Systolic thrill After exercise, first sound too short.

3142: Enlarged ½ inch to left. On exertion, mitral systole becomes decidedly impure. All athletics were in high school. Some palpitation on exertion. October, 1911, some enlargement determined.

3151: Declared well in 1903. Four years of college football, last in 1907. Scarlet fever as child. Enlarged 1 inch to left and slightly to right. Poor muscular quality. Diastolic murmurs in third and fourth left interspaces, disappear on exertion. Some irregularity. *Palpitation. Vertigo. Probably aortic insufficiency.*

2180: Heart enlarged 1 inch to left. Muscular quality poor. Snapping aortic second. All athletics in high school.

3032: Enlarged ¾ inch to left. Systole murmurish in fourth left interspace. All athletics in high school. October, 1912, cardiac hypertrophy noted.

2785: Reduplication of mitral first in erect posture; in recumbent, some slurring. Gave up athletics five years ago—never very active previously.

2792: April 10, 1913, second sound reduplicated. At present, enlarged ¾ inch to left and ½ inch to right. First sound, loud, muscular; second, accentuated. All athletics at high school.

† No record.

severer athletic contests it usually leads to hypertrophy plus dilatation of a variable degree, frequently marked by valvular insufficiency.

2. Functionally, the hypertrophied heart, even when dilated and giving distinct evidence of valvular insufficiency, may prove more fitted to carry the man through a severe athletic contest than a normal heart would be. On the other hand, acute cardiac dilatation occurs more frequently in athletes and men used to severe muscular strain than in normal men, and the ultimate effects are more prolonged and severe.

3. There is reason to believe that for normal human activities an "athletic" heart is distinctly disadvantageous.

We desire to express our appreciation for valuable suggestions and hearty cooperation in this work on the part of Dr. C. R. Bardeen, Dr. Joseph S. Evans, Dr. Robert Van Vabzah and Mr.Hodges.

# ISCHEMIC PAINS *

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The term "ischemic" is applied only to those localized recurring pallors which affect circumscribed areas for an indefinite and usually a very transient period, but which may recur at any time, under conditions similar to the first exciting cause. I do not include in the definition the general pallor or bloodlessness of the entire body-surface which follows shock or loss of blood. It is not necessary to define pain here, further than to mention the fact that the pains of ischemia are subject to the same variation of degree as are pains in other cases. On first thought the consideration of ischemic phenomena might seem to belong to the domain of the internist. In the more recent surgical works, but more especially in Cabot's "Differential Diagnosis," quoting J. Pal's book on *Gefässkrisen*, the subject has been given special attention. Thus, Cabot says:

> More useful on the whole, is the book on *Gefässkrisen*, in which Pal elaborates upon the basis of careful observation, both at the bedside and at the dead-house, a theory of the origin, not of all pains, but of certain paroxysmal types of suffering associated especially with the vessels of the brain, the heart and the kidney, but to a lesser extent with those of the intestine and of the extremities. He supposes that arterial spasm (favored and prepared for by arteriosclerosis, by uremia, by lead-poisoning and by the nerve lesions of tabes) is the cause of a large group of pains, paralyses and other functional disturbances which had never before been brought together under any single explanation. Taking lead-poisoning as an impressive example of the theory, he points out that we have here a notable rise of blood-pressure, associated sometimes with cerebral crises (headaches, convulsions, coma), often with abdominal crises (lead colic) and occasionally with anginoid seizures. In arteriosclerosis we have likewise cerebral, abdominal and cardiac crises and, in addition to these, well-marked peripheral crises (intermittent claudication). In uremic and eclamptic poisoning we have likewise cerebral and abdominal crises. In tabes dorsalis the abdominal crises are the most familiar.
>
> In all these affections post-mortem examination may demonstrate that there is no gross lesion, such as cerebral hemorrhage or thrombosis, coronary occlusion or blocking of a peripheral artery. Indeed, the arteries and the surrounding tissues may appear almost or quite normal post morten. It is natural, therefore, to assume some functional change such as spasm, to account for the pain, paralysis and other functional changes recognized at the bedside. In favor of the hypothesis of vascular spasm, or Gefässkrisen, are two considerations:
>
> A rise of blood-pressure has many times been demonstrated by Pal before, as well as during, the crises. This hypertension cannot be accounted for as a result of pain, since in many of Pal's cases it preceded the pain. He has found it in the gastric crises of tabes, as well as in the uremic, saturnine and arteriosclerotic cases.

Ischemia should not be confounded with anemia; the one is local, the other general. Anemia is accompanied by known blood-changes, while ischemia occurs in subjects in whom there are no recognizable changes in the plasma or the blood-cells. To the surgeon, the subject is of interest and of importance, because of the proper interpretation of the symptoms, signs and consequences of the condition. Its interpretation determines to a certain extent the course the surgeon advises in the management of his case. It is because of the sometimes misleading character of pain, as a symptom, that attention is called to the subject at this time.

Two cases will serve to illustrate:

Case 1.—T. P. K., aged 80, married, complains of pain in the left lower abdomen near the location of an inguinal hernia. The pain is sharp, comes suddenly, is at times much more severe than at others, and is not intermittent or periodic. With one exception, it has always occurred at night while the patient was lying in bed. It remains in the same location, always recurs in the same spot and does not radiate. The patient is occasionally nauseated but does not vomit, except after taking medicine, and then he vomits only the medicine. These attacks have occurred within three hours after eating a hearty dinner, but none of the dinner is vomited. With the first attack there was difficulty in getting a movement of the bowels. There was no movement for sixty hours at least. There was a great deal of gas present. During the last two or three attacks, shortly after the pain comes on there has been a tendency for the bowels to move, and in some cases there is a slight movement. There is no increase in the frequency of urination. Pain seems to pass from a point near the location of the rupture to the small of the back. Dizziness is not marked. There are increased thirst and nervousness.

Case 2.—(Dr. Flansburg's case, illustrating intermittent claudication).—F. C., a traveling salesman, aged 53, has always been a heavy meat-eater. He uses alcohol moderately and smokes incessantly. He denies venereal infection. For the past two years he has suffered from "cramping pains" in the right foot and calf of the leg. After walking a distance of five or six city blocks he becomes aware of a dull aching pain in his leg, and if he continues to walk the pain becomes more and more severe until he is compelled to stop and sit down. After a minute's rest the pain disappears entirely and he is ready to walk five or six blocks more.

Most of us have been consulted as to the nature of transient pains occurring in almost every region of the body. Many patients complain of numbness and pain in the fingers, toes, legs, shoulders and chest, pains which are transient, but cause anxiety and discomfort.

Lead-eclampsia and nephritis have been mentioned as causing transient ischemia. Is it not reasonable to assume that many other toxic agents may act in the same manner? Those of us who have done many abdominal sections have noted a blanched and collapsed area of intestine sometimes many inches in length. I recently saw a young surgeon search the entire canal for the obstruction. It is more than probable that had that patient suddenly awakened, he would have had a severe colic as a result of the ischemic condition present. It is probable that the ischemia is due to the direct action of a toxemia on the part involved, or on an altered efferent impulse which controls it. Recurring attacks predispose to recurring attacks, through oversensitization to the irritant which initiates the seizure, and the parts affected undergo nutritive degenerative changes which sometimes lead to gangrene, as in Raynaud's disease. In other cases there is apparently complete recovery.

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* Read before the Rock Island Surgical Association, Nov. 13, 1913, at Chicago.

Sir R. Douglas Powell,[1] in an exhaustive article on angina pectoris, refers to circumscribed anginal attacks in various regions of the body, due to temporary spasticity of the vessels.

H. G. Turney,[2] in discussing the ischemic type of trophoneurosis, speaks as follows:

> The vasomotor instability which forms such a prominent feature of organic arterial disease may very closely simulate a pure neurosis, though on the other hand it should be remembered that prolonged disturbance of innervation will itself bring about changes in the walls of the vessels. When the patients are advanced in years, or even arrived at middle age, the presumption must always be on the side of arterial disease.

Sir Thomas Barlow,[3] in his summary of Raynaud's disease, says in part:

> In other groups of cases there is the possibility that the principal arteries of a limb may be normal so far as clinical investigation reveals, but that the smaller vessels may become affected with obliterative disease. There still remains a large number of cases (*a*) in which there are no areas of persistent anesthesia; (*b*) in which there is no localized atrophy of groups of muscles; (*c*) in which the symptoms are paroxysmal with a return to the normal state in the interparoxysmal periods; (*d*) in which there is no marked symmetry; (*e*) in which the arterial pulse, though narrowed during the attacks, becomes normal between the attacks; (*f*) in which the subjects are young and with no evidence of degenerative disease to which the title of Raynaud's disease is justly applied.

Hirschfelder[4] says:

> This condition is always associated with sclerosis of the femoral, popliteal or one of the other arteries of the leg, and claudication is simply part of the general arteriosclerosis.

Henry L. Akin[5] cites a number of cases which bear on this subject.

Kreuzfuchs[6] describes the symptoms of abdominal arteriosclerosis as paroxysmal pains in the stomach region or elsewhere in the abdomen, especially around the umbilicus, and tympany. The syndrome may be that of arteriosclerotic epigastralgia or true angina abdominis. In differentiation it is important that the attacks occur independently of the intake of food, but are elicited by the factors which experience has shown induce symptoms in heart and vascular affections. Another point is that the abdominal angina is most liable to develop when the patient reclines. It is more common in men than in women, and most of the patients are over 40 or 50 years of age. The diagnosis is confirmed by discovery of some other arteriosclerosis. A case reported by Brunton and Williams[7] concerns a patient, aged 63, who suffered from severe pain which came on when he began to walk. In this respect the pain resembled that of angina pectoris, but it differed in its position, as it was most severe in the umbilical region.

Frank F. D. Rickford[8] of Philadelphia reports two cases.

J. Ramsay Hunt[9] of New York has discussed the subject and reported a case.

It will be seen that the majority of authors associate transient ischemias with general arteriosclerosis, although some recognize what I believe to be the fact, that there are true localized ischemias dependent on transient localized conditions, and that during the attack there is marked pain in the parts involved.

Volkmann's ischemic paralysis belongs to the classification of cases included in this paper. The first stages of this surgically inflicted disease are those of a true ischemia later carried forward to post-mortem rigidity. We should not confuse the symptom group described first by Weir Mitchell, under the title "erythromelalgia," in which the changes are exactly opposite, with those noted in ischemia.

Considering the foregoing and summing up the case, as we must, on a theoretical basis, what rational conclusions may we reach? The subject divides itself into two phases: Is the cause of the positive signs and symptoms dependent on some irritant which acts on some part of the sympathetic nervous system, causing a circumscribed spasticity of the vessels under its control, or is it due to some change in the part involved? To me it appears most probable that both conditions may be and later on are present in all cases. In the most typical of all ischemic pains, angina pectoris, we have added a third condition which may also be present in all cases to a varying degree, namely, a general rise in blood-pressure; whatever the cause, the objective and the subjective phenomena are the same, a lowering of the blood-supply to the part, a lowering of the temperature of the part, because of reduction of the blood-supply, and pain, which in this condition is the call for oxygen, either from the musculature or from the nerves themselves, or from both. Who can say that the pain in an inflamed nerve may not be due to want of oxidation under conditions of infection? It is more than probable that some of these circumscribed ischemias have their origin in the part affected, as in the leg cramps of overexertion from walking, and the pain in the chest from mountain climbing, in which the muscle hunger is made more noticeable by a lessened supply of oxygen. The cramps of the swimmer are probably a circumscribed ischemia, made more certain by the reduced surface temperature. But are these manifest symptoms due wholly to reflex impulse through the centers, to some special internal secretion of the cells involved or to an altered hormone? Here we enter a field which, although much explored, has brought us but little information.

The studies on the effects of the various internal secretions made by such investigators as Pemberton and Sweet, Dean Lewis, Joseph L. Miller and a number of other investigators, lead to a probable conclusion that an alteration or a modification of these secretions may have a very positive effect in relation to these localized manifestations.

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[1] Powell, R. D.: In Allbutt and Rolleston's System of Medicine, vi, 157.

[2] Turney, H. G.: In Allbutt and Rolleston's System of Medicine, vii, 84.

[3] Barlow: In Allbutt and Rolleston's System of Medicine, vii, 145.

[4] Hirschfelder: Disease of the Heart and Aorta, Ed. 2, p. 359.

[5] Akin, Henry L.: Gastric Symptoms Consequent on Arteriosclerosis, The Journal A. M. A., June 5, 1909, p. 1825.

[6] Kreuzfuchs, S.: Angina Abdominis, Deutsch. med. Wchnschr., 1910, xxxv, No. 7, abstr., The Journal A. M. A., March 26, 1910, p. 1094.

[7] Brunton, Sir L., and Williams, W. E.: Case of Angina Abdominis, Lancet, London, April 6, 1912; abstr., The Journal A. M. A., May 4, 1912, p. 1400.

[8] Rickford, F. F. D.: Intermittent Spinal Claudication, Am. Jour. Med. Sc., November, 1912.

[9] Hunt, J. Ramsay: Lumbar Type of Intermittent Claudication, Am. Jour. Med. Sc., February, 1912; The Ischemic Lumbago, The Journal A. M. A., Feb. 28, 1914, p. 671.

Up to the present no positive explanation has been given and no satisfactory theory advanced as to the cause of gastric ulcer, epilepsy and numerous positive and unpleasant things which confront us in our work. I am not going to assert, because I do not know, that gastric and duodenal ulcer may have their primary focus in a circumscribed ischemia which, recurring, as is the law with these phenomena, permits the digestive fluids to act on a partially devitalized area and further, by the lessened phagocytic powers due to the bloodless condition, permits increased bacterial activity. May not the convulsion of epilepsy be due to a transient, localized, circumscribed ischemia? It has been established beyond question that the pituitary gland in its posterior portion furnishes an active secretion which seems to have a selective action on muscle. This little body which we call gland has really no glandular structure. Its active colloid seems to come from its cellular elements alone. The active parts of the adrenals are not resident in the gland parenchyma, but in its infolded neurons. The correlation between the thyroid, the pancreas, the pituitary and the glands of the upper intestine have been worked out to a considerable extent, but so far as I know, no internal secretion has been isolated from the muscle-cell or from the cells of the axons of the mixed nerves. Yet it is but fair to infer that all the structural anatomic units of the body contribute to the body balance. As it is true in the development period, why not throughout the continuance of life, until the balance is disturbed by disease, or by injury in some other form?

My own belief is that these local manifestations are the effect of a disturbed metabolism, effected through the hormones of the body, and that the change finds its expression in the temporarily altered function of the part. There is such change in the part that a lesser degree of the exciting cause, whatever it may be, tends to a reproduction of the phenomena under constantly reduced resistance until relief is found in treatment, death from intercurrent disease or from such an altered condition of the part that local death ensues.

That the probable source is often local is shown by the prompt relief which is given by strictly local treatment; but that it may be initiated by some central influence is shown by the quick action of drugs which relieve the general tension, and also by the almost certain initiation of the trouble by substances which are toxic.

What influence may be played by the internal secretions on these phenomena has not been fully determined; but in analysis of the cases the influence of the adrenals, the pituitary and the other glands should not be forgotten, or the possibility that other glandular alterations or changes in the cell metabolism may initiate an attack.

Use should be made of those forces at our command which relieve vessel tension: the hot bath best of all, or hot applications over the painful area. In the cases reported, sodium nitrite and amyl nitrite seem to be of service and give prompt relief, if they do not have to be repeated too often. Opium is the ideal remedy; it relieves pain, quiets the nervous system, stimulates the heart and relieves the arterial spasm.

When the symptoms point to rare lesions which may require a serious operation, the possibilities of an ischemic pain should be borne in mind and eliminated by means of all the diagnostic material at command. We too often omit the leukocyte-count, the thermometer, the urinary findings (including the microscope) and the blood-pressure. We should not be in too much of a hurry. A diagnosis should be made if possible before operative measures are resorted to.

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# ETIOLOGY OF ARTHRITIS DEFORMANS

## PRELIMINARY NOTE *

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The common presence of foci of infection, the history of previous infections, the occasional isolation of bacteria from the joints in chronic arthritis and the fixation of complement by certain bacteria in arthritis deformans (Hastings) suggest strongly the infectious character of this disease. The similarity, on the other hand, of the articular changes with those found in the nervous arthropathies, the associated dystrophies of the muscles, skin and nails, the symmetrical onset, the frequent involvement of nerve-trunks and the exacerbations following nervous shocks are commonly cited as indicating a neural origin. The chief objections to the infectious theory of arthritis deformans are that so many cases do not give a typical picture of infection and that no one thus far has isolated any organism from the tissues or joints in a considerable number of consecutive cases. Bacteriologic examination of the blood and of the articular exudate, when obtainable, usually has given negative results. It occurred to me that the lymph-glands draining the involved joints would be a good place to look for organisms, and this has been done in a considerable number of cases.

The glands are excised with strict aseptic precautions under local anesthesia, and cultures made at once, a portion of the gland being reserved for microscopic study. The part used for cultures is dipped into boiling water or passed through a Bunsen flame so as to sterilize the surface, rapidly cooled in sterile salt solution, emulsified in a specially devised sterile air-chamber[1] and inoculations made chiefly into tall columns of ascites-dextrose-agar. In this way organisms have been isolated from glands from all but three of thirty-eight cases of arthritis deformans, the duration of the disease ranging from two to seventeen years. Streptococci have been obtained in fourteen cases; a peculiar, streptococcus-like organism at first completely or partially anaerobic in nine cases; *Bacillus welchii* in nine cases; staphylococci in three; *B. mucosus* in one case, and the gonococcus in one case. In a number of glands several organisms have been found at the same time. In no instance have the streptococci been hemolytic for human blood. They resemble on isolation the usual *Streptococcus viridans* more than hemolytic streptococci, although only three strains produced green on blood-agar plates. There is often a marked difference between the type of organisms found in foci of infection such as the tonsil, and of those found in the glands (or joints). All the streptococcal forms isolated have shown a marked preference for anaerobic conditions of growth in the primary culture.

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* From the Memorial Institute for Infectious Diseases.

[1] The chamber in which this is done and the method of making the cultures is described in an article to appear in the Centralblatt für Bakteriologie, Parasitenkunde und Infectionskrankheiten.

Positive results have been repeatedly obtained from glands only 5 mm. in diameter. The number of colonies have ranged from one to two thousand. The virulence of all the strains tested has been slight; when first isolated the streptococci show a marked affinity for joints and muscles and in some cases the lesions would parallel closely the condition found in the patient from whom the strain was isolated.

In some cases the same organism has been isolated at the same time from more or less widely separated regions, as epitrochlear and femoral glands, from gland and muscle or from gland, joint-fluid or joint capsule (six cases). Often the size of the gland draining the joints is apparently proportional to the degree of articular involvement. There is often great sensitiveness of the patient to injections of killed organisms (autogenous vaccine) isolated from the glands, and marked improvement may follow such injection. These facts, in conjunction with the affinity of the organisms for joints and muscles of dogs and rabbits after intravenous injections, would seem to leave little doubt that the bacteria found in the glands draining the joints in arthritis deformans are the actual cause of the disease. The full significance, however, of the presence of *B. welchii* in both glands and joints is not yet clear.

Microscopic sections of atrophic and often tender muscles and the thickened articular capsule in a number of these cases have shown a marked thickening and not infrequently a complete plugging of the blood-vessels, apparently not the result of organized thrombi but rather of a primary endothelial proliferation. Bacteria have been found in these areas of endothelial proliferation. In rabbits the exudate in the joints after intravenous injection and in the abdominal cavity after intraperitoneal injection usually shows a preponderance of endothelial cells. For these reasons the changes observed in the blood-vessels about the infected joints may be regarded as primary rather than secondary, and it would seem as if in arthritis deformans the micro-organisms are taken up from the circulation by the endothelial cells which proliferate freely, so that eventually the blood-supply is reduced or cut off, in consequence of which there result areas of lowered oxygen tension, diminished nutrition and atrophy. Such conditions would favor the growth of organisms which on isolation are sensitive to oxygen. Clumps of bacteria, some of which have been found to be alive, have been observed within thick layers of old fibrous tissue in the capsule of joints in which there was no sign of recent inflammatory reaction. It may be recalled that Axhausen was able to produce the gross and microscopic changes peculiar to arthritis deformans by ligating the blood-vessels supplying the structure of certain joints in dogs.

The details of these experiments will appear in the *Journal of Infectious Diseases.*

I wish to express my appreciation to Dr. Frank Billings for the opportunity to study many patients under his care, and to the resident and attending staffs of the Presbyterian and Cook County hospitals and to the other physicians for their cooperation.

122 South Michigan Avenue.

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**A Point of View.**—The doctor sees all the weakness of mankind, the lawyer all the wickedness, the theologian all the stupidity.—Schopenhauer.

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# FREE TRANSPLANTATION OF BONE INTO THE PHALANGES *

S. L. HAAS, M.D.
SAN FRANCISCO

In general, the small bones of the hand are subjected to the same diseases as are the larger bones of the body. Thus, we see acute and chronic osteomyelitis of the suppurative as well as of the tuberculous type; syphilis, especially in children, and tumors both benign and malignant. Any of these conditions may cause partial or complete destruction of the bone, and the resulting deformity and disturbance in function of the fingers may be of considerable importance. If, however, the patients are operated on in time and the defects remedied by some plastic method, the deformity can be lessened and a considerable amount of function maintained.

Various methods have been adopted to accomplish this purpose. The first methods consisted of using such materials as glass, ivory and metals to replace the removed piece of bone. In some the results have been good; but here as in other cases in which a foreign body is introduced into the tissues, there are many failures. Many varieties of bone transplants such as decalcified bone, dead bone from the same or different species, and living bone from the same or different species or individual have all been employed with varying degrees of success. The use of pieces of living bone from the same individual have proved to be the most satisfactory, especially if they are covered with periosteum.

Carl Timann[1] reports several cases of tuberculous osteomyelitis of the phalanges in which operation was performed by Mueller, who employed the following method: He first removed the diseased portion of the phalanx with its periosteum and then transplanted into the defect a piece of ulna which had its periosteum attached. He emphasized that in children it is important to have the transplanted bone longer than the excised portion. He was able to observe his cases from two months to two years after operation, and in six out of eight cases obtained good results. In one of his cases a successful transplant was made into the middle phalanx of the finger with good functional result, which is more difficult to obtain than in the basal phalanx.

The next important report is that of Schmieden,[2] working in Bier's clinic. He used practically the same method as Mueller with the exception that he took a piece of periosteal-covered bone from the tibia for his grafting material. He advocates the use of an extension apparatus for about fourteen days after the transplantation has been accomplished. He also advises that the periosteum extend beyond the edges of the transplant so that it may be more easily sewed in place. Iodoform powder is sprinkled into the wound. Schmieden calls attention to the inadvisability of doing plastic bone work in cases of general constitutional tuberculosis on account of the poor resistance of the patients. In one of his cases he first used a piece of tibia and then a piece of ox-bone without success. In a case of substitution in the basal phalanx of the big toe a tibia graft was successful. The insertion of a piece of ivory into the basal phalanx of the third finger failed, on account of recurring tuberculosis, the foreign body being thrown off. In another case he used macerated animal bone with good result. Although the results in his cases are not very satisfactory, they at least show the possibilities along this line. Although but few cases have been reported since that time, it is probable that there are many cases which have not been recorded.

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* From Division of Surgery, Leland Stanford Junior University Department of Medicine.

[1] Timann, Carl: Die Behandlung der Spina ventosa mittelst freier Autoplastik, Beitr. z. klin. Chir., 1902, xxxvi, 189.

[2] Schmieden: Ueber plastischen Knochenersatz bei der Heilung der Spina ventosa und über der Enderfolge, Deutsch. Ztschr. f. Chir. 1904, lxxv, 302.

Another method has been suggested by Bardenheuer in which a split phalanx or metacarpal is utilized according to a special technic.

### PREVIOUS REPORTS OF CASES

Case 1.—Thiel[3] reports a case from Bardenheuer's clinic as follows: A girl aged 12 showed a spina ventosa of the middle phalanx of the right index-finger which did not improve under conservative treatment but progressed to fistula formation. June 9, 1896, under ether anesthesia, after the application of an Esmarch bandage, an incision was made from the middle of the end phalanx to 1 cm. above the metacarpophalangeal joint. The fistula tract was excised and the entire diseased phalanx was removed; next the tendons were loosened up and the tissues surrounding the head of the first phalanx were cleared away. A wire was inserted through the phalanx near its end, after which a longitudinal piece was cut away from the side, leaving a small bridge of bone in the region of the wire. With the wire as an axis, this piece of bone was then turned over to occupy the gap left by the removal of the middle phalanx. The transplant was anchored to the terminal phalanx by means of a piece of wire. At the end of four weeks ankylosis took place at the first interphalangeal joint, but there was motion at the end joint and a good cosmetic result was obtained.

Case 2.—Another case is reported by Stern[4] of a boy aged 4 with spina ventosa of the first phalanx of the right thumb. The child previously had a tuberculosis of other bones, and the phalanx of the thumb had been curetted. At the time of operation the thumb was swollen, red, and a fistula extended down to the bone. Nov. 16, 1897, an operation was performed in which the procedure was practically the same as employed in the preceding case, except that the incision was extended down to the first metacarpal and a part of that bone was transplanted. December 3, eighteen days after the operation, passive and active motion were begun and massage was given. An early good result was reported but the later course of the case was not given.

Recently another method has been presented which makes use of the substitution of the whole phalanx of the toe for a diseased phalanx of the finger.

Case 3.—The first of these cases was reported by Wolff[5] in 1909. His patient was suffering from a spina ventosa of the basal phalanx of the fourth finger, which caused a considerable interference of motion. Under ether narcosis he removed the entire phalanx with some of the diseased tissue. He put in place of the removed phalanx the first phalanx of the second toe of the right foot, sewing it in with catgut. Into the defect of the foot he inserted a piece of cartilage from the sixth rib. At the end of one week he began both passive and active motion. He reported a useful joint after a lapse of one year and eight months.

Case 4.—W. Goebel[6] reports a case of enchondroma of the first and second phalanges of the left fourth finger in a boy aged 16, in which he carried out the following procedure: He removed the entire first phalanx and substituted a phalanx with its periosteum from the second toe. The defect in the toe was filled with a piece of cartilage from the sixth rib. The day after the operation he began systematic motion. Five weeks later he removed with curet the rest of the enchondroma, which had involved the other two phalanges. The end-result was fairly good except that the patient could not completely close the fist. Goebel calls attention to the fact that function seems to exert some influence on the success of the transplantation, and he emphasizes the importance of beginning movements as early as possible.

Shortly following Goebel's article, R. Sievers[7] reported a case of cystic sarcoma of the middle phalanx of the left ring-finger in which he used a method similar to that described by Goebel. Under local anesthesia the basal phalanx of the fourth left toe was substituted for the diseased phalanx of the finger, and the defect in the toe was filled with a piece from the tibia. He began early motion and obtained good functional and fairly good cosmetic result, although there was partial inability to extend and flex the fingers.

The question naturally arises as to the permanency of entire phalanx transplants which are not directly in contact with periosteal free bone. Murphy[8] reports the entire disappearance within fourteen months of a phalanx which he had transplanted to restore the bridge of the nose. This he ascribes to the absence of direct contact of bone with bone. In Goebel's case after the lapse of one year, and in Wolff's case after one year and eight months no evidence of degeneration in the transplanted phalanx was noticed. It is possible that, as Goebel has stated, the influence of function is the determining factor in the latter transplantations, a factor which was entirely lacking in Murphy's case.

The removal of the phalanx from the toe does not disturb the function of the foot; but it is advisable to make use of the second or fourth toe.

Through the courtesy of Professor Stillman, I have had the privilege of operating in two cases of diseased phalanges that appeared for treatment in the surgical clinic of the Stanford University medical school.

### REPORT OF AUTHOR'S CASES

Case 1.—D. G., woman aged 23, came to the clinic Sept. 11, 1912, complaining of a swollen and painful left ring-finger. There was no family or personal history of tuberculosis and no history or evidence of syphilis either congenital or acquired. On examination there was a swelling that involved the entire first phalanx and part of the second. Motion of the interphalangeal joints was painful and restricted. Pressure over the basal phalanx caused pain. The Wassermann test and the von Pirquet reaction were negative. Roentgenoscopy revealed an involvement of the first phalanx which was probably tuberculosis. The patient was given the routine treatment for such conditions. She was advised to remain as much as possible in the fresh air and to take good nourishing food. A removable splint was applied to the hand so as to keep the part at rest and at the same time to allow for exposure to the sunlight. The Bier bandage was applied daily and the patient was given potassium iodid at the same time. A regular course of tuberculin injections was also given. The application of a 10 per cent. pyrogallol salve was tried, but it produced such severe blistering that it had to be discontinued. After six months of treatment no improvement in the patient's condition was observed; in fact, as shown by the roentgenogram, the disease had extended through the periosteum (Fig. 1).

*Operation.*—March 9, 1913, under ether anesthesia, an incision was made on the side of the basal phalanx just below the dorsal surface down to the membranous tendon of the extensor communis digitorum. The latter was retracted dorsally and the periosteum was separated from the bone. This diseased bone, a part of the healthy bone and the involved parts of the sheaths of the flexor tendons were removed. Next, a piece of bone from the tibia with its periosteum was inserted into the gap in the phalanx. (In removing the tibia graft it is advisable to use a new set of instruments so as to eliminate the chances of transferring the original infection to the healthy bone.) The removed piece of the tibia was slightly longer than the removed part of the phalanx, but this is not advisable except in growing persons. No attempt was made to remove any blood or to check any slight bleeding, as the blood stimulates the regenerative properties of bone. The periosteum was approximated with interrupted catgut sutures, as were the other layers and the skin. Extension was applied to the finger for three weeks, and at the end of five weeks both active and passive motion were commenced. The cosmetic result was very good (Fig. 4), but owing to the limited amount of flexion the function is poor, which is possibly due to the late institution of motion, the extensive involvement of the tendon sheaths and the fact that the transplant was too long.

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[3] Thiel: Osteoplastischer Ersatz einer Phalanx nach Exartikulation derselben wegen Spina ventosa, Centralbl. f. Chir., 1896, xxiii, 833.

[4] Stern, C.: Ersatz einer exartikulirten Phalanx durch Osteoplastik, Centralbl. f. Chir., 1897, xxiv, 178.

[5] Wolff, H.: Auswechselung von Finger- und Zehenknochen (Beitrag zur Autoplastik), München. med. Wchnschr., 1911, lviii, 578.

[6] Goebel, W.: Ersatz von Finger und Zehenphalangen, München. med. Wchnschr., 1913, lx, 356.

[7] Sievers, R.: Freier autoplastischer Phalangentausch in einem Fall von Riesenzellsarkom der Mittelphalanx des linken Ringfingers, Beitr. z. klin. Chir., 1913, lxxxv.

[8] Murphy, J. B.: Contribution to the Surgery of Bones, Joints and Tendons, The Journal A. M. A., April 6, 1912, p. 990.

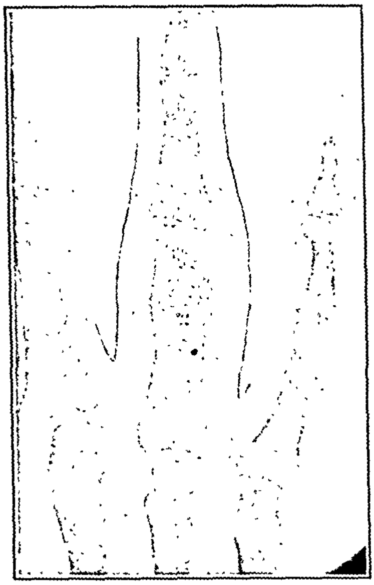

Fig. 1.—Condition of finger in Case 1 before operation, showing outline of the swelling and extension of the disease through the periosteum.

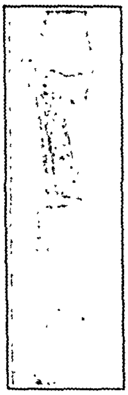

Fig. 2.—Case 1, two weeks after operation.

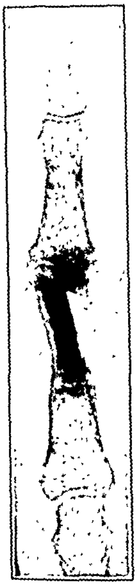

Fig. 3.—Case 1, three months after operation. Increase of periosteal growth. Notice the lack of growth at the distal segment.

Case 2.—A. L., boy aged 3, was brought to the clinic by the mother, who stated that he fell a few days previously and hurt his finger. There was no family or personal history of tuberculosis. Examination showed a spindle-shaped swelling of the third finger of the left hand, and pressure over the swollen part caused pain. Motion both passive and active was restricted and painful. Roentgenoscopy revealed a rarefaction at the distal end of the first phalanx of the third finger. The Wassermann reaction was negative. The finger was put into a splint to keep it at rest, the Bier bandage was applied daily, and potassium iodid was given internally. After one and one-half months' treatment the Roentgen ray showed a progression of the lesion, and an operation was advised (Fig. 6).

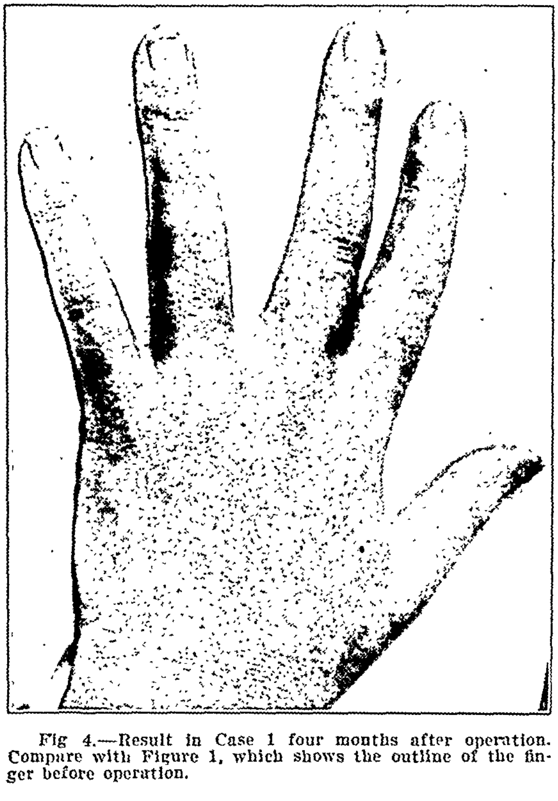

Fig 4.—Result in Case 1 four months after operation. Compare with Figure 1, which shows the outline of the finger before operation.

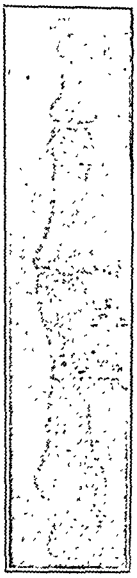

Fig. 5.—Case 1, eight months after operation. Welding of transplant with the phalanx.

*Operation.*—Aug. 4, 1913, under ether anesthesia a similar method to that described in Case 1 was carried out. The finger was kept in extension for three weeks, and one week later both passive and active motion were started. The functional result was such that after three months both flexion and extension were almost normal. Aside from a slight bend the finger appeared practically normal (Fig. 10). No definite diagnosis of tuberculosis could be made in this case as the microscopic examination of the removed tissue showed nothing but granulation tissue.

A short study of the roentgenograms may prove of interest. Here we have two cases, one in a child of 3 in the active growing period, and the other in a young woman of 23 who has just passed the time of active growth. As one would expect and as is demonstrated by the roentgenograms, the rapidity of bone regeneration is greater in the younger of the two persons (Figs. 3 and 8). One must take into consideration that the process was more advanced in the older patient and that it was necessary to remove more of the periosteum; but even if there had been an equal involvement of bone and periosteum in the two cases, the regeneration would still be more rapid in the younger. Roentgenograms were taken at intervals of about two weeks from the operation in order to determine the part that the original phalanx, the remaining periosteum and the transplanted piece of tibia with its periosteum played in the regenerative process. The most striking fact is the inactive part that the transplant seems to take in the regeneration. This is best made out in Case 1, as at no time is there any evidence of sprouting of bone from its surface or increase in the thickness of the graft. It is probable, however, that the graft has remained alive since the density does not seem to alter at any stage. In Case 2 there is considerable evidence that the remaining periosteum takes an active part in the regeneration, as the new bone is most marked under the periosteum (Fig. 8). In Case 1 (Fig. 3) one sees that at the place where the proximal segment of the original phalanx joins the transplant there is growth of bone along the edges, while the central area remains free. This must be interpreted as growth from the periosteum or from that part of the cortex immediately beneath the periosteum. There is very little bone regeneration from the small distal segment of the original phalanx. It is possible that this is due to the fact that there was considerable disturbance to the nutrition of this part as well as the periosteum; but it shows that there must be other factors present thancortical bone in order to have regeneration (Figs. 3 and 8). The later plates (Figs. 5 and 9) show the gradual welding of the transplant with the original bone and restoration of the symmetry of the phalanx.

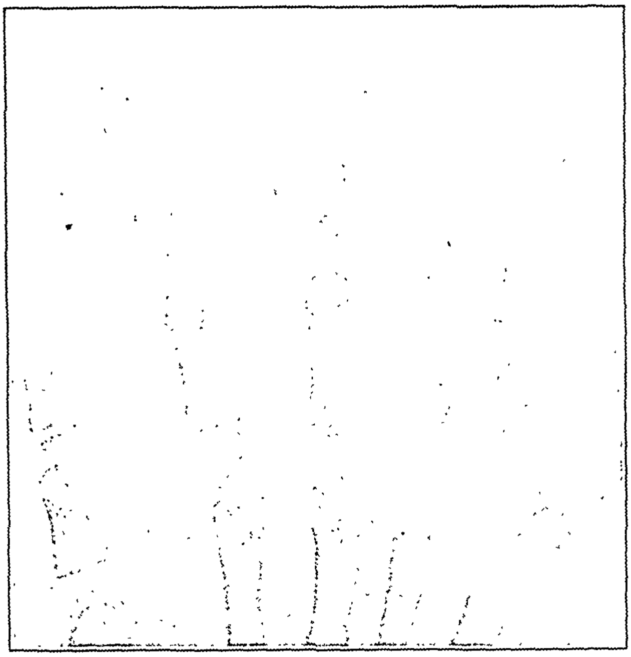

Fig. 6.—Case 2 before operation, showing involvement of distal end of the first phalanx of the third finger.

The study of regenerative processes in bone by means of the Roentgen ray might lead one to erroneous conclusions. It must be remembered that the Roentgen ray does not show periosteum that is free of calcareous deposit or very young bone, and in making deductions from the roentgenograms we must bear these facts in mind. We must rely on the microscopic preparations for the more accurate knowledge of the early changes that take place in cases of transplantation.

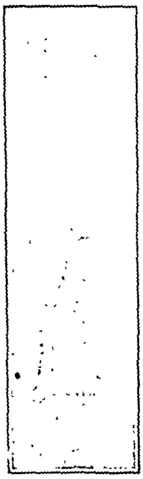

Fig. 7.—Case 2, one week after operation.

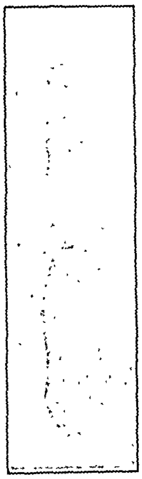

Fig. 8.—Case 2, one month after operation, showing periosteal bone growth.

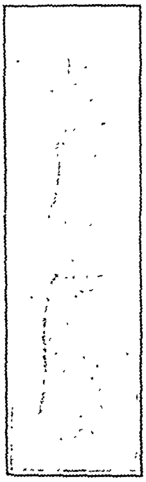

Fig. 9.—Case 2, three months after operation.

The question arises as to which is the preferable method of those enumerated. The number of reported cases is too few to decide that matter at present, but it seems that under certain conditions each has its application. As to the ease of the operation, the exponents of each make the same claim for their respective method. To me it seems that the removal of the whole phalanx and the substitution of another is a much more formidable procedure than a partial resection. It does not appear advisable to disturb the normal joint if it can be avoided, although the results obtained in the reported cases seem to indicate that it makes but little difference. In the case of a very young person the transplantation of a whole phalanx would raise the question whether or not this phalanx would continue to grow longer after it had been transplanted. The normal length of the phalanx of the toe is less than that of the finger; consequently if it did grow to its normal length, would there still be the stimulus for additional growth so as to equal the normal length of the finger phalanx? This also brings up the question of the transplantability of the epiphysis, a subject that has not up to the present been fully and satisfactorily investigated. It is to be hoped that further reports may add something to this very interesting side of the question. It certainly would be safer in a very young person to allow the epiphysis to remain intact and to make use of a small transplant instead of a whole phalanx; but if the epiphysis is destroyed, it might be better to try a whole phalangeal transplantation. The latter method would be indicated in case of tumors, especially if these tend toward malignancy.

From the reports of other cases a more definite conclusion can be formed as to which method is preferable, and answers to some of the problems of bone transplantation supplied.

I wish to express my thanks to Professor Stillman for the privilege of operating in these cases and reporting them.

210 Post Street.

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**Duty of a City as to Infectious Diseases.**—The city isolates cases of contagious disease for the protection of the general public, not primarily for the sake of the patient. Adequate provision for isolation is therefore properly a charge on all the city. Unless the city stands ready to offer hospitalization, it forces the patient to pay for the protection of the public. In effect, it adds a fine to a misfortune, and adds it especially in those families in which the misfortune alone rises to the dignity of a calamity. The duty of the city is plain. It must provide adequate hospital accommodations for at least the more severe contagious diseases.—*Bulletin Chicago School of Sanitary Instruction.*

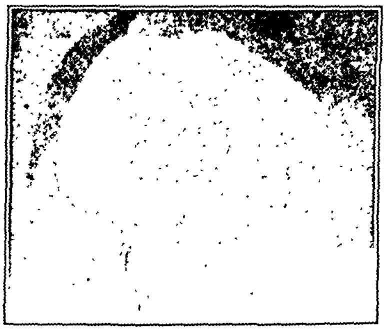

Fig. 10.—Flexion in Case 2 four months after operation.

# THE TONGUE AND UPPER ALIMENTARY TRACT IN PELLAGRA *

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The diagnosis of pellagra is not infrequently fraught with difficulty for two reasons: In the first place, the disease is remarkable for its behavior with reference to seasonal variations, and the remission or decrease of symptoms during the colder months of the year is very apt to lead one astray. In the second place, pellagra is very irregular in its manifestations; it is a long-drawn-out disease, as a rule, requiring months or even years for the development of such symptoms as we have been wont to consider characteristic. When the pellagrous triad of dermatitis, nervousness and diarrhea is present, the diagnosis is of course readily made; but if the skin changes are slight, with an indefinite history of an eruption, if the nervous symptoms are not prominent, and if there has been but moderate diarrhea or perhaps none, the diagnosis may be attended with considerable difficulty. For the symptoms on the part of the various systems—the skin, the nervous system, and the gastro-intestinal tract—do not usually develop at the same time, and the very name of the disease, emphasizing, as it does, one feature alone, is apt to make one base his diagnosis on the least important of all symptoms—the dermatitis. I say "least important," because a transient sunburn-like erythema may be easily forgotten by the patient, while the subsequent skin changes may be so slight that they may quite readily escape detection by the physician. Again, much valuable time is lost if one's diagnosis depends on the dermatitis alone, for this symptom is not usually the first to appear.

It is unfortunate that one symptom should have been singled out to designate the disease, and it is important that we learn to recognize other symptoms, which may enable us to diagnose pellagra between "attacks," or the history of which may lead us to suspect a previous "attack." In the front rank of such symptoms stands diarrhea. Occurring, commonly, as a part of the spring or summer "attack" and in some instances persisting throughout the year, it should be regarded, in pellagrous areas, with suspicion. Sometimes, however, the most careful questioning will not disclose any previous attacks of looseness of the bowels. I have seen cases in which there was indisputable evidence of pellagra—cases in which there were nervous symptoms of the most pronounced kind, in which there were contractures of the thigh muscles, and in which the skin of the hands and forearms showed trophic changes, such as shininess and pigmentation—I have seen such cases in which diarrhea had either not been present or had been of so mild a nature as entirely to have escaped the memory of the patient.

In the absence of diarrhea, pellagra may still betray itself by other symptoms referable to the gastro-enteric tract, especially in its upper portions; and these symptoms are of significance in that they not uncommonly persist during the colder months, and also because they are among the first to appear, foreshadowing, frequently, both the diarrhea and the dermatitis. The chief subjective symptoms are loss of appetite, "dyspepsia," pyrosis, and sore mouth.

Loss of appetite is very common. It may be present in the spring, or summer, or fall alone, initiating an attack of pellagra, or it may be almost continuous—though less prominent—throughout the year. There may be diminished appetite for months or even for a year or two before the advent of more characteristic symptoms. In some instances the appetite is capricious, it comes and goes without reference to the seasons. Some pellagrins say that they can eat but that they do not enjoy it—"my food doesn't taste right" is an expression I have heard many times. Others retain their appetites but are afraid to eat much on account of the discomfort on swallowing, or on account of gastralgia or dyspepsia, although the latter symptoms do not usually bear any relation to the taking of food. One patient with sore mouth and pain on swallowing nevertheless retained her appetite; another, an old man who had suffered for several years with pyrosis and abdominal distention, said that his appetite had never been better. I have had pellagrins say that they could not get enough to eat. As a rule, however, the appetite is diminished during the attack, and frequently is not quite up to normal during the seasonal intermissions.

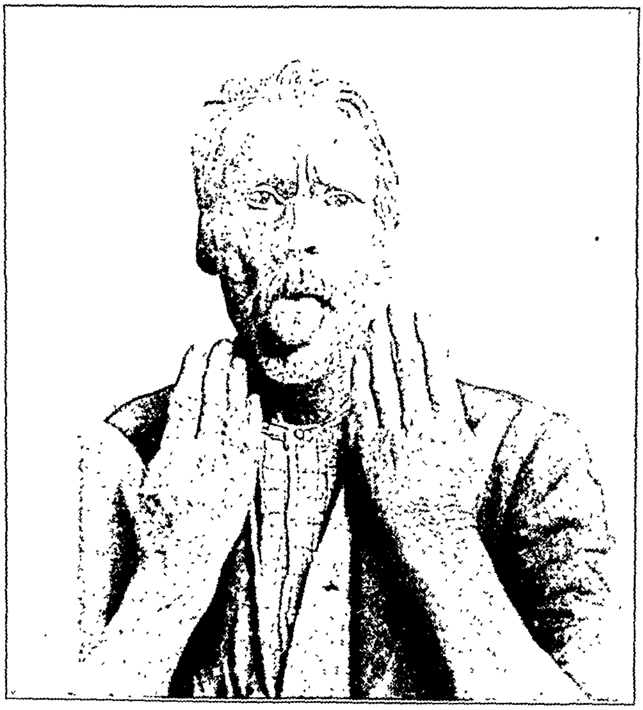

Fig. 1.—Tongue fissured in the center and bare of epithelium at the margins.

The symptoms included under the term "dyspepsia" may conveniently be considered here, although they should not, perhaps, be attributed entirely to the upper part of the digestive system. They are nausea, gastric pain, pyrosis, distention and belching. Nausea in some degree is present in most of my cases, usually constituting one of the prodromal symptoms of each recurrent attack. Regurgitation of food is not uncommon and may continue throughout the year. Actual vomiting, in my cases, has taken place only at the outset, with the exception of one case in which it was most persistent.

Some measure of pain or discomfort occurs in practically all cases of pellagra. It may be a severe but transient gastralgia, or it may be more of an aching

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* Read at a meeting of the Tri-State Society held at Wilmington, N. C., Feb. 18-19, 1914.

or dragging sensation described as a "misery" or "hurting." In either case it does not seem to depend on the taking of food.

The pyrosis is perhaps the most constant cause of complaint. In some instances it is limited to a single attack, in others it persists with variable intensity for years, constituting one of the most annoying symptoms of the disease. One patient described the sensation as "a ball of fire rolled up in my stomach"; another said: "My stomach acts like it's skinned." Most pellagrins do not find this symptom aggravated by eating; a few, however, think that certain articles, such as vinegar, pork, and greasy substances, do increase the burning.

Distention of the abdomen and belching are frequent complaints; there is often a sensation as of a lump in the stomach. At times there may be difficulty in swallowing, with choking and "smothering" sensations. These are the chief subjective symptoms which the pellagrin sums up as "dyspepsia" or "indigestion." Characteristic as they are, they do not compare in importance with the symptoms referable to the mouth, which give not only subjective, but objective evidence as well, of the presence of pellagra.

The history of a stomatitis occurring in the spring or summer, lasting a week or two, recurring perhaps the following year, is commonly encountered. There are few who do not remember the sore mouth; or it may be the sore mouth that brings the pellagrin to the physician. If seen at this time the lips are dry and may be cracked; the complaint is made that they burn and that the whole mouth feels as if it were scalded. Eating and drinking are painful. Even before the appearance of the skin erythema there are signs in the mouth which indicate an attack. The whole mucous membrane appears unduly red. There may be aphthae on the gums and on the inside of the cheek. They are more persistent than ordinary aphthae and do not respond as well to treatment with silver nitrate. The gums are tender; in one case there was a history of bleeding gums. While the saliva is usually increased, I have noted excessive secretion in one case only, in which the association of ptyalism and stomatitis with aphthae presented a picture which closely resembled mercurial salivation. The sore mouth does not usually last over two or possibly three weeks and between the attacks there is nothing characteristic about the gums. The tongue, however, affords us much information not only during the outbreak, but also during the less active periods of the disease.

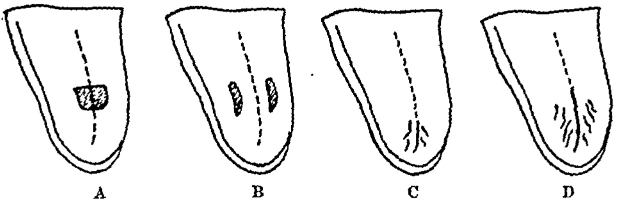

Fig. 2.—Diagrams indicating *A*, tongue bare of epithelium save for small area in center; *B*, tongue bare save for two small symmetrical strips; *C*, slight fissuring on the tip; *D*, more marked fissuring.

There are several things to be noted about the tongue. If examined just before the outbreak it may present the appearance of a normally coated tongue. Very often, however, a more careful scrutiny will reveal the presence of papillae on the tip and anterior portion of the tongue, peeping through the coat, as it were; this is the "stippled" tongue, as it has been called. This injection of the papillae is sometimes seen in the intermissions as well. An enlarged tongue is not uncommon. But the characteristic feature of the pellagrous tongue is the shedding of the epithelium so that the organ looks smoother, cleaner and very red.

This shedding of the lingual epithelium takes place in varying degrees. In the beginning it is seen at the tip and sides of the tongue. More marked denudation leaves only a small central coated strip or two narrow symmetrical areas on each side of the long axis of the tongue. When the tongue is completely stripped we have the appearance variously described as the bald, beet, beefy, raw, and cardinal tongue. The shedding of the epithelium is most marked during the outbreak; between attacks it tends to be replaced. I say "tends" because so often the regeneration of the lingual epithelium is incomplete and the tongue presents a neat, well-groomed appearance rather than the coated, somewhat dirty-looking surface which is the normal. The tendency to regeneration is seen most often on the central part of the dorsum, the tip and margins of the tongue often remaining denuded or with but a scanty epithelial covering.

I have said that the tongue of pellagra is very red. Occasionally one sees a tongue — smooth and slimy-looking and undoubtedly pellagrous—which is quite pale. I have seen tongues which had a cyanotic hue.

I have found tremor of the tongue as it is extended to be a quite common symptom, nor is it limited to the attack. In some cases the movements are so irregular that "tremor" does not describe them, different portions of the tongue contracting without any definite program, in the nature of a convulsion. A sharply pointed tongue I have seen in a few instances, but more often, perhaps, one sees a swollen, thick and fissured tongue, while ulcers at the margins occur in a considerable number during the outbreak.

The fissured tongue is a great aid in the diagnosis of pellagra. Fissures may be noticed during the attack, situated along the medial fold and limited to the anterior portion of the tongue, or radiating from this fold in all directions. In my experience those in whom the disease has existed for some time—several years—present the greatest amount of fissuring. These fissures may be longitudinal, extending a considerable part of the length of the tongue, or they may be transverse, crossing the central fold and at right angles to the long axis of the tongue. They may be superficial, few in number and limited to the central portion of the tongue, or they may be so numerous and extensive that they corrugate the surface of the tongue so that it resembles the skin of the scrotum when cold.

Now I do not think that every tongue with fissures is a pellagrous tongue. Since I have been paying especial attention to the appearance of tongues I have noted many with fissures of various degrees of size and depth which I could not with the greatest stretch of the imagination attribute to pellagra. But I do maintain that one should always be on the lookout for the fissured tongue and that the association of fissure with enlargement, tremulousness, and partial or complete epithelial denudation of the tongue is sufficient to justify one in suspecting pellagra as the most probable cause of the condition.

I have endeavored, in this brief paper, to present what have seemed to me the most important symptoms on the part of the upper alimentary tract. Their significance lies in the fact that many of them endure throughout the year; and if due attention be paid to them one may, not infrequently, hazard a diagnosis of pellagra in the absence of what are usually considered more characteristic symptoms.

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# THE BACILLUS AEROGENES CAPSULATUS IN BLOOD-CULTURES WITH RECOVERIES *

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CHICAGO

The purpose of this paper is to report four cases in which the *Bacillus aerogenes capsulatus* was obtained in blood-culture during life, and to call attention to this means as a valuable method of diagnosis. Since the discovery of this organism there seems to have been no doubt that it invaded the general blood-stream at or shortly before death, as is evidenced by its generalized presence at necropsy in patients dying from this infection. Welch and Nuttall[1] made this observation and called attention to it in their early report. Notwithstanding this report and the suggestion that it carried, only a few of the many observers of this organism have reported positive blood-cultures due to it, and so far as I have been able to find, there has been no recovery reported, when a positive culture was obtained.

In my series of four cases, three patients recovered and one died; but in no instance did operation or death occur prior to the reporting of the positive blood-culture.

In 1896 Flexner,[2] in his study on terminal infections, said that there was evidence of the distribution of the bacilli within the body during life, but that he was reluctant to admit of a general invasion of the blood and tissue before death, as the maintenance of life for any length of time after the organism had established itself in the blood and produced gas there was probably impossible; but Gwyn,[3] in 1899, having repeatedly recovered the organisms from a patient during a space of thirteen days, thought that it was impossible for gas to be formed in the circulating blood, and Cole,[4] in 1902, confirmed this observation. These data seemed to prove quite conclusively that gas was not formed in large quantities, at least during life, and this conclusion has not yet been disproved so far as I am aware.

Following is a brief review of the instances recorded in which positive blood-cultures have been obtained:

Gwyn,[3] in 1899, recovered this organism on three different occasions from the blood of a patient with a clinical diagnosis of chorea insaniens. The first culture was obtained thirteen days before death, and in the third the streptococcus was associated. Acute endocarditis was now added to the diagnosis.

Cole,[4] in 1902, obtained the organism from the blood three hours before the death of a man who had had both legs crushed two days previously. He used 8 c.c. of blood, 1 c.c. of which was injected into the ear-vein of a rabbit, and the remainder divided equally between twelve tubes of litmus milk. Both the rabbit and the culture-mediums gave a positive result.

Schiedler,[5] in 1909, attempted a culture in a post-partum case, but with negative results both aerobically and anaerobically.

Rhea and Young,[6] in 1909, reported two cases of infection due to *B. aerogenes capsulatus* following abortions, one of which gave a positive blood-culture eighteen hours before death.

Libman[7] attempted to cultivate this organism from the blood of a patient with gall-bladder infection, both by cultures and by inoculating a rabbit, but with negative results.

Hewitt,[8] in 1911, reported ten cases of gas bacillus infection in which he obtained four positive blood-cultures; but he does not state the time at which these cultures were taken in regard to the time of death of the patients, all four of whom died, one twelve hours after admission, the second fifty-eight, the third seventy-two, and the fourth ninety-six hours. Since it is generally conceded that the incubation period of this organism is forty-eight hours, none of his cultures could have been taken more than two days before death, and it is more probable that they were taken on the day of death.

The essential facts of the cases which I wish to report are as follows:

CASE 1.—Man, aged 51, contractor, was seen in consultation by Dr. L. L. McArthur, on whose service he entered the hospital, May 16, 1912. He took sick rather suddenly three weeks previously with severe cramp-like pains in the region of the gall-bladder. The pain radiated to the right shoulder and downward. This attack lasted two hours. There was no nausea or vomiting at this time or in the subsequent history. The patient does not know whether he had rise of temperature or not, but says that he was distinctly tender over the gall-bladder and in the epigastrium. This tenderness never disappeared entirely, but there were no more severe or sudden attacks or pain. He gave no history of constipation, jaundice, venereal disease or other illness.

When the patient entered the hospital the temperature was 103.4, pulse 96, and respiration 28. Tenderness was noted over a palpable mass in the region of the gall-bladder and epigastrium, with some rigidity. The abdomen was slightly distended. The leukocyte count was 8,050.

The patient was kept under observation for a week. At times during this period he was irrational and delirious, and his temperature oscillated between 99 and 102.4. He did not experience much pain but was restless. His mental condition in regard to his own feelings was that of a state of "well-being." A slight jaundice developed during this week of observation, and for this reason the blood-culture was suggested. The stools were normal except that blood was found on one examination. The leukocyte-count rose to 12,500, with 85 per cent. polymorphonuclears. The blood-culture was made five days before the operation and yielded the *B. aerogenes capsulatus* and the *B. mucosus capsulatus*. The operation revealed a ruptured gall-bladder with about two-thirds of the fundus gangrenous, a large abscess beneath the liver containing thick, yellowish, bile-stained pus, and two pea-sized gall-stones. The pus had a very foul odor and smears revealed the same organisms as found in the blood, and in addition a small Gram-negative bacillus, a fusiform bacillus and cocci. The patient recovered.

CASE 2.—Man, aged 40, American, was seen in consultation with Dr. Edwin Tuteur, Feb. 2, 1913, at Henrotin Hospital, at which time a positive blood-culture was obtained. The patient had been sick for five weeks with high fever, and six days previously had been operated on for cholecystitis, and drainage established. The drainage-tube was removed on the second day following the operation and the wound was allowed to close, although the patient's condition was growing more serious all the time. The report of the positive culture was given at the end of twenty hours. On February 4, I was given permission to probe the wound, at which time a serous discharge, pus-cells, bile and the *B. aerogenes capsulatus*, along with a few other organisms, were found. The patient continued to grow worse, although drainage was reestablished in the wound. From February 18 to February 21 the patient experienced severe griping pains in the bowels, and passed large yellow stools with some blood and mucus.

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* From the Pathological Laboratory of St. Luke's Hospital.

* Read before the Chicago Pathological Society, Feb. 9, 1914.

[1] Welch and Nuttall: Bull. Johns Hopkins Hosp., 1892, iii, 81.

[2] Flexner, Simon: Jour. Exper. Med., 1896, i, 559.

[3] Gwyn, N. B.: Bull. Johns Hopkins Hosp., 1899, x, 134.

[4] Cole: Bull. Johns Hopkins Hosp., 1902, xiii, 234.

[5] Schiedler, F.: Monatschr. f. Geburtsh. u. Gynäk., 1909, xxx, 714.

[6] Young, E. B., and Rhea, Z. J.: Boston Med. and Surg. Jour., 1909, clx, 401.

[7] Libman, E.: Bull. Johns Hopkins Hosp., 1906, xvii, 215.

[8] Hewitt, W. R.: Bacillus Aerogenes Capsulatus Infections, with Report of Ten Cases, THE JOURNAL A. M. A., April 1, 1911, p. 959.

February 18, Dr. A. E. Halstead saw the patient in consultation with Dr. Tuteur and Dr. McQuinn and advised a second laparotomy. February 21, the patient was transferred to St. Luke's Hospital where he was operated on by Dr. Halstead, February 22. Many adhesions were found in the region of the gall-bladder, and the anterior wall of the stomach and pylorus was greatly thickened. The scar and fistula were removed and drainage established. The discharge was very free following the operation, and on February 28 was slightly acid, but did not give the silver nitrate test for hydrochloric acid. A later test, February 26, however, showed the discharge to be 10 degrees acid. February 27, it was 18 degrees acid and a white precipitate formed on adding silver nitrate. The diagnosis of a gastric fistula was now made, and the *B. aerogenes capsulatus* was still present in smears made from the discharge. The patient presented a hazardous condition for some time, but recovered. The fistula, though nearly closed, was present when the patient was discharged, March 26, 1913.

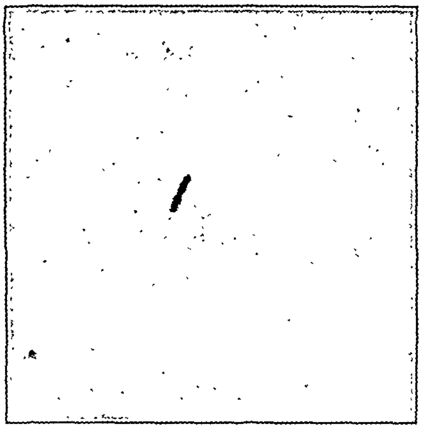

Fig. 1.—*Bacillus aerogenes capsulatus* from bouillon blood-culture; × 1,200.

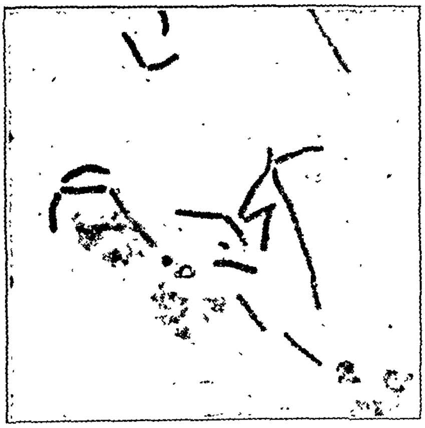

Fig. 2.—*Bacillus aerogenes capsulatus* from pus of fistula, Case 2; × 1,200.

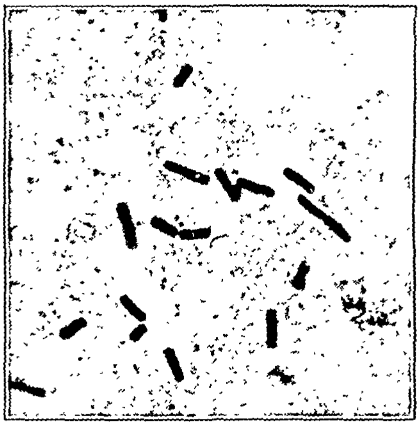

Fig. 3.—*Bacillus aerogenes capsulatus* from heart's blood of rabbit; × 1,200.

CASE 3.—Man, aged 30, was admitted to the service of Dr. Frankenstein, May 15, 1913, complaining of sharp, cutting and continuous pain in the right chest. The pain was such that he could not lie down with comfort. The present trouble started four weeks before, on which date in another hospital he had a fistula leading to the gall-bladder region curetted. On the same day he started for Chicago, but became violently sick on the train and had to stop in a small town for one week before he was able to leave, and on reaching here was treated for two weeks for pneumonia before entering the hospital.

A fluoroscopic examination by Dr. Case at St. Luke's Hospital, May 16, in standing position, showed the right chest to be filled with fluid to within 1½ inches of the apex of the cavity. Aspiration, however, on the same day did not permit any fluid to escape, but on the end of the trocar was a drop of bloody pus, which in smears revealed a small Gram-negative, a fusiform bacillus, and the *B. aerogenes capsulatus*. May 17, a positive blood-culture was obtained which was reported the following day. Exactly two days after the blood was taken for the culture, a rib was resected, which allowed a large amount of pus to escape. The leukocyte count previous to operation ranged around 16,000, with 90 per cent. polymorphonuclears. The patient recovered.

The patient in giving his history stated that he had had three operations previous to the curetting mentioned above, the first being two and a half years before to drain an appendiceal abscess, another to remove the appendix, and the third to remove the remaining stump of the appendix.

CASE 4.—Man, Italian, aged 20; on the night of May 26, was shot with a rifle through the lower end of the thigh, causing a compound fracture of the femur. The wound was dressed by a physician who put a through-and-through drain in the channel made by the bullet. Forty-eight hours after the accident the patient was admitted to the service of Dr. L. L. McArthur at St. Luke's Hospital. Immediate amputation was advised notwithstanding the great sepsis of the patient. This was refused. The condition of the patient aside from being very septic when admitted was also very dirty and unkempt. Fecal matter was found on the dressings and on his clothing. The wound was exuding a bloody serum, and crepitation could be elicited around it. The leg was beginning to become gangrenous. The dressing and drainage material had not been changed since being applied. Ten hours after admission blood was taken for a culture, of which 5 c.c. gave a luxuriant growth of the *B. aerogenes capsulatus* by the following morning.

In this case the blood was taken twenty-six hours before the patient died and was reported on twelve hours prior to death, on which day the leg was definitely gangrenous, gas could be expelled from the wound in large quantities, and distinct crepitation could be felt over the entire leg, thigh, and from the abdomen to the navel. The patient was not jaundiced before death, but immediately afterward a slight hemolytic tint was observed on the skin. The sclerae were clear. Death occurred three and a half days after the injury.

Each blood-culture was made from about 10 c.c. of blood, which was divided about equally between two flasks, each containing approximately 50 c.c. of broth. Both plain and glucose broth were used. In two cases I failed to receive a growth except in the flasks containing glucose. In Case 4, in order to make more certain as to whether or not the blood contained the organisms at the time of examination, 5 c.c. of blood were defibrinated, and 3 c.c. of the defibrinated serum and corpuscles injected into the ear-vein of a rabbit. The rabbit showed the characteristic findings due to this organism at the same time that the blood-culture was reported.

The cultures were pure, except in the instance in which the *B. mucosus capsulatus* was associated. No attempt was made to secure anaerobic conditions other than that which the depth of the medium afforded. Smears from the bottom of the flasks showed the organisms in small numbers and usually in pairs. A chain was rarely found as is characteristic in pus. Hemolysis occurred in all the flasks that contained the organisms, and in the flasks containing glucose, bubbles of gas were adherent to the sides of the flask, and occasionally they could be seen to rise to the surface of the broth. Capsules were demonstrated with difficulty in the organisms from the flask.

To prove the identity of the bacillus, rabbits were injected in the ear-vein with 3 c.c. of the blood-culture medium from each of the four cultures and killed within a few minutes. They exhibited the typical findings due to the *B. aerogenes capsulatus* after being incubated for eighteen hours. Smears from the various organs and heart's blood demonstrated that the bacillus was encapsulated, as did also the smears from the original pus.

The purpose of this paper is not to prove whether or not this organism is capable of multiplying in the circulating blood, or to call attention to its wide distribution in wounds and other pathologic conditions, but to show that it is possible to demonstrate this organism by means of blood-cultures in severe cases of infection due to it, and yet obtain recovery when proper surgical treatment is instituted.

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# ISOLATED DISEASE OF THE SCAPHOID

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A condition described as isolated disease of the scaphoid, or Koehler's disease is occasionally reported. In a recent paper[1] it is stated that only eight cases have been described since 1908. Therefore, the following cases, which appear to be true to this type, might well be placed on record.

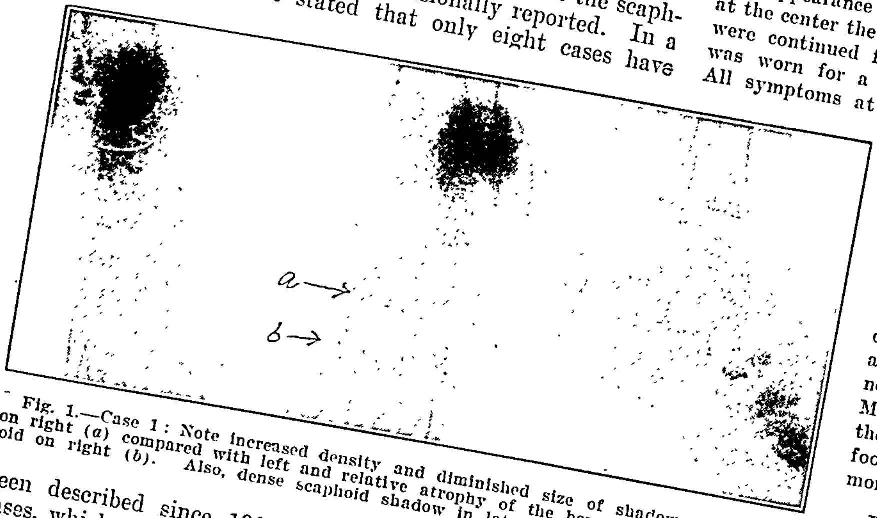

Fig. 1.—Case 1: Note increased density and diminished size of shadow of scaphoid on right (*a*) compared with left and relative atrophy of the bones adjacent to scaphoid on right (*b*). Also, dense scaphoid shadow in lateral view.

CASE 1.—H. H., girl, aged 2½ years, seen Aug. 7, 1911, began walking at 16 months, she was sick for a month in August, 1910, with fever and swollen glands; a month before examination she slipped while the foot was caught between the bed and the wall; she limped that day and would not walk the next or at any time since.

Examination proved negative except for the right foot, which was swollen; there was no tenderness on the tibia or fibula phalanges or metatarsus; there was moderate tenderness over the tarsus, especially on the inner side; the foot was held by muscle spasm in moderate equinovalgus. In both lateral and anteroposterior views, roentgenograms (Fig. 1) revealed a dense pearly shadow of the scaphoid with moderate atrophy of the surrounding bones of the tarsus. Roentgenoscopy was otherwise negative.

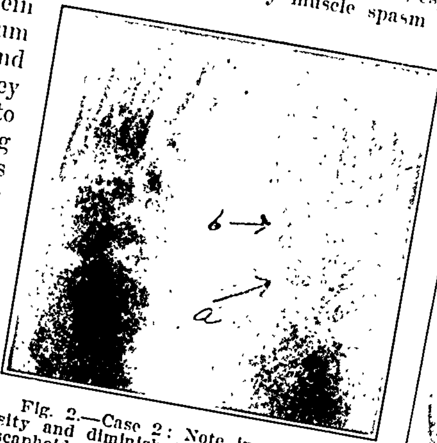

Fig. 2.—Case 2: Note increased density and diminished size of shadow of scaphoid on right (*a*) compared with left and relative atrophy of the bones adjacent to scaphoid on right (*b*).

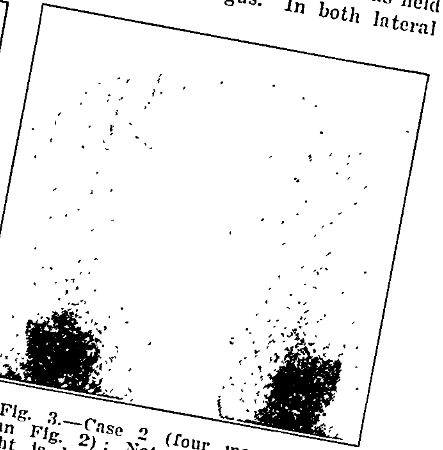

Fig. 3.—Case 2 (four months later than Fig. 2): Note that scaphoid on right is less extensively ossified than on left, and that ossified portion is in two fragments. On the left the tarsal bones have their normal size and density.

Plaster of Paris was applied to the foot and lower leg and occasionally renewed. During the first month the symptoms all increased; during the second month the child walked with comfort in the plaster and a roentgenogram taken two months after the first showed less atrophy of the surrounding bones. The appearance of the scaphoid was unchanged except that at the center there was a distinct "punched-out" look. Plasters were continued for two months more and a Whitman plate was worn for a few weeks after the plaster was removed. All symptoms at this time had disappeared, and there has been no relapse in the past two years of walking without support.

CASE 2.—D. T., girl, aged 4, seen Oct. 27, 1913, for several weeks has had moderate tenderness in one foot, which is now slightly swollen and warm. The roentgenogram (Fig. 2) shows moderate retardation of growth and increase in density of the scaphoid in this foot. Examination and history are otherwise negative. This child was treated by Dr. Mitchell, the family physician, in much the same manner as was Patient 1. The foot was supported for a little over two months. All symptoms have disappeared.

Pfahler[1] reviews the theories which have been advanced as to the etiology and pathology of this condition and says:

> All authors agree that it is not tubercular. The fact that a distinct sclerosis indicated by the increased density of the ossifying center is present, points to an inflammatory process. It would seem, therefore, that the disease is an osteitis probably of traumatic or rheumatic origin which interferes with the development of the bone.

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[1] Pfahler, George E.: Isolated Disease of the Scaphoid Bone of the Foot in Children (Koehler's Disease), Surg., Gynec. and Obst., 1913, xvii, 625.

Both the cases here referred to were highly suggestive of tuberculosis in their external appearance, but both patients have made recoveries almost too prompt and complete to be consistent with that diagnosis. One of the cases had a distinct history of injury; in the other, there was none. One case became worse clinically during the first month of fixation; the other improved rapidly from the start. In one the temperature was consistent with a tuberculous infection during the height of the symptoms; no record of the temperature in the other case is available. My own theory (not yet wholly abandoned) was that we were dealing with a mild tuberculous focus which had reached the stage of healing and sclerosis before the accident broke down the wall of cicatrization and called attention to the foot.

Empire Building.

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# SPOROTRICHOSIS OF THE EYE [*]

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AND
CLIFFORD P. McCULLOUGH, S.B.
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In 1898 Schenck[1] published a report of his studies of an organism that he had discovered in the pus from refractory subcutaneous abscesses of the arm. The patient had scratched the index-finger on a nail, causing a small abscess which was opened. In three weeks an ulcer developed on the back of the hand between the second and third metacarpophalangeal joints. The inflammation traveled up the arm and several abscesses formed.

From two different foci of the disease Schenck obtained and cultivated an organism the characteristics of which were similar to those of many of the yeasts and fungi. Dr. Erwin F. Smith of the U. S. Department of Agriculture tentatively assigned it to the genus *Sporotrichum.*

The pathogenicity of the organism was demonstrated by subcutaneous injections in dogs. Nodules developed containing yellowish-red gelatinous material, and cultures from this and the walls of the abscess gave the characteristic growth of the organism. Inoculation of a white mouse caused death, and the organism was recovered from the local lesion and also from the lungs and liver.

In 1900 Hektoen and Perkins[2] studied and reported a similar case of refractory subcutaneous abscesses from which an organism was isolated, identical in essential details with the one described by Schenck, which they called *Sporothrix schenkii.* In their case, in a boy of 5, the lesion developed on the index-finger after a blow with a hammer. The denuded area did not heal, the finger became swollen, and in a short time a well-defined, undermined ulcer the size of a dime developed, the floor of which was covered with grayish pus. The lymph-vessels of the arm enlarged and numerous abscesses formed which healed with difficulty after opening.

Glycerin-agar tubes inoculated with material from the abscesses all developed pure cultures of the organism, which showed after a few days in an incubator at 37 C. (98.6 F.) grayish-white, elevated irregular colonies about the size of a pin-head. Hektoen obtained growth on agar, blood-serum, gelatin, potato, bouillon and vegetable infusions.

The first extra-American case was reported by deBeurmann and Raymond in 1903; since then many cases have been reported, the lesions affecting the subcutaneous tissues, lungs, muscles, tendons and also the mucous membranes, including the conjunctiva, pharynx and larynx. DeBeurmann and Gougerot, with their associates, have called attention to various morphologic and cultural differences in the sporothrix, many of which have since proved to be inconstant.

The following case observed by us, of infection of the eye with sporothrix, is, we think, the second indubitable one of its kind in this country, the other having been reported by Gifford in 1910.

### REPORT OF AUTHORS' CASE

*History.*—C. P. M., a student, had been working in the laboratory with cultures of various strains of sporothrix, and on several occasions small capillary pipets containing emulsion of the organism were broken at a distance of 8 or 10 inches from the face.

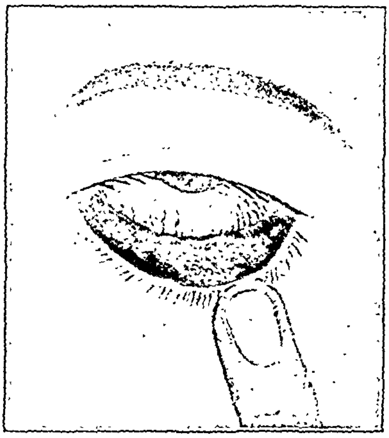

Fig. 1.—Ulceration on lower lid.

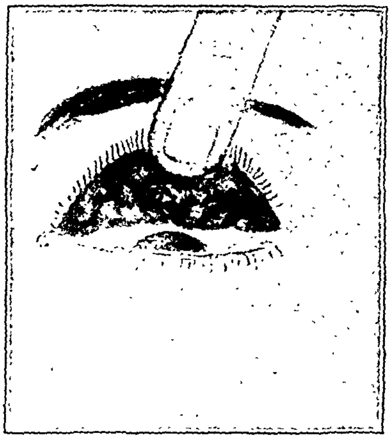

Fig. 2.—Enlarged follicle and small ulceration on upper lid.

On the evening of July 10, 1913, he noticed a soreness of both eyes, together with photophobia and a sensation as if a foreign body was under the lids. The following morning the lids were slightly swollen, the pain was increased and the surrounding lymph-glands were quite tender on pressure.

July 11, the general condition was good; there was no fever. Leukocyte-count was 9,000. The pain, swelling of the eyelids and photophobia had increased. The conjunctiva of the eyelids of both eyes was reddened and so swollen that the fornix rolled out in a mass when the lower lids were everted. In addition there were present on the palpebral conjunctiva and also on that of the fornices several grayish-yellow, slightly elevated spots varying in size from 0.5 to 3 mm. in diameter from some of which the covering epithelium had been cast off so that they seemed like small ulcers. Numerous follicles presented in other portions of the conjunctiva. Secretion was rather scanty, and an examination of a smear made from gentle scraping over the spots and the conjunctiva, stained with alkaline methyl blue, showed no organisms, but numerous pus-cells. The next day scrapings were taken from the shallow ulcers and aerobic and anaerobic cultures were made. Potassium iodid, 10 grains three times daily, was given. The eyes were washed out several times daily with a solution of oxycyanid of mercury, 1:4,000.

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[*] From the Memorial Institute for Infectious Diseases.

[1] Schenck: Refractory Subcutaneous Abscesses Caused by a Fungus Possibly Related to the Sporotrichia, Bull. Johns Hopkins Hosp., 1898-1899, p. 286.

[2] Hektoen, Ludvig, and Perkins, C. F.: Refractory Subcutaneous Abscesses Caused by Sporothrix Schenkii—A New Pathogenic Fungus, Jour. Exper. Med., Oct. 1, 1900, p. 77.

July 16, the condition had not improved; there was swelling of the preauricular glands, which were painful on pressure. Because of discomfort from irrigation, the strength of the solution of oxycyanid was reduced to 1:6,000. No growth was obtained in the tubes, which were placed at room temperature (from 18 to 20 C., or 64.4 to 68 F.).

July 17, the condition of the lids was no better; more yellowish spots were seen forming in the conjunctiva. The patient seemed quite sick and had a temperature of 100.5 F. The preauricular, anterior cervical, submaxillary and postauricular glands were somewhat swollen and painful on pressure. The small ulcerated spots on the conjunctiva were treated with tincture of iodin.

July 18, the general condition was worse; the patient had headache and malaise; the temperature was 101; the leukocyte-count was 18,000.

Sporothrix was growing in the tubes, and spores were found in the scrapings from the conjunctiva.

July 19, the general condition was worse and the patient went to bed. Temperature was 102; leukocytes 14,600.

During the night a sudden pain occurred in the left knee on the internal side of the upper end of the tibia; in the morning the limb was very sore, and painful on pressure or motion, but without swelling or redness. On application of the ice-bag after twelve hours this pain disappeared. The swelling of the conjunctiva was somewhat less, and no new spots had appeared. The iodid was increased to 20 grains three times daily.

July 20, the temperature was 99 in the morning, and rose gradually to 101.4 in the afternoon. The ulcers in the conjunctiva were healing.

July 21, in the morning there was pain in the left elbow and wrist and the lower end of the right femur, which was very sharp especially on motion and pressure. The temperature was 100.6 in the afternoon.

July 22, the pains were still persistent. The temperature was 101 in the afternoon. The conjunctiva was much improved; the ulcers had healed.

July 23, in the morning all the pain had disappeared except in the left wrist. During the night there had been severe pains in the right knee around the head of the tibia, and also in the right ankle. The temperature was 100.3 in the afternoon, the leukocyte-count 11,200.

July 24, all pain had disappeared. The temperature was 99.4. The conjunctiva was still red and the fornices considerably swollen. From this time the temperature remained normal and also the leukocyte-count. The swelling of the glands disappeared, but the subconjunctival tissue of the fornices remained swollen for some days. Gradually the follicles and conjunctival swelling disappeared and in about two months the lids presented a normal appearance.

*Microscopic Examination and Cultures.*—July 12, microscopic examination of pus from an ulcerated nodule in the conjunctiva showed no organism. Aerobic and anaerobic cultures were made on blood-agar, Loeffler's serum and aerobic cultures on 2 per cent. dextrose agar, and incubated at 37 C.

July 16, there was no perceptible growth; the tubes were placed at room temperature (from 18 to 20 C.).

July 17, there were numerous small, white, rather indistinct colonies on the dextrose-agar, composed of long branching filaments; there were no spores.

July 18, the colonies were typical of sporothrix, each being distinct, with a center rising in ridge formation like the peak of a mountain. Microscopically there was an abundance of long filaments and round or oval spores; the latter were not only in the filaments but also free. The organisms stained with the ordinary dyes and retained Gram stain.

At this time Gram-positive, oval bodies were seen in smears of pus from the eye; these resembled sporothrix but were found only singly or in pairs, no definite clumps being observed.

A few days later colonies also appeared on the other aerobic cultures, but the anaerobic cultures remained sterile.

*Agglutinative and Opsonic Tests.*—At no time during the infection or convalescence was eosinophilia detected.

Blood-serum was collected on different days, heated for thirty minutes at 56 C. (132.8 F.), and then placed on ice. Serum from a normal person and from the patient before infection, treated in the same manner, served as a means of control.

From a culture of sporothrix isolated from the eye, a suspension of spores was made, and the agglutinative reaction of the serum determined microscopically. The suspension of spores was made in sterile salt solution, and spontaneous clumping did not occur in hanging drops incubated for one hour at 37 C. Increasing dilutions of each specimen of serum was made and mixed with equal parts of spore suspension. Hanging drops of each of these dilutions were then incubated for one hour at 37 C., and examined microscopically to determine the highest dilution in which agglutination occurred. These tests gave the results recorded in Table 1.

TABLE 1.—AGGLUTINATION OF SPOROTRICHAL SPORES BY PATIENT'S SERUM (NORMAL=0)

| Date | Agglutination at Dilution of: |
|---|---|
| 6/20 | 0 |
| 7/ 3 | 0 |
| 7/18 | 1:16 |
| 7/22 | 1:16 |
| 7/23 | 1:16 |
| 7/24 | 1:16 |
| 7/25 | 1:24 |
| 7/29 | 1:32 |
| 8/ 2 | 1:32 |
| 8/ 6 | 1:64 |
| 8/10 | 1:64 |
| 8/14 | 1:64 |
| 8/18 | 1:64 |
| 8/26 | 1:32 |

The same samples of serum were used to determine the point of opsonic extinction. Increasing dilutions of serum were made by means of salt solution. Human leukocytes were obtained by collecting blood-agar from a normal person in sterile sodium citrate solution, washed and suspended in sterile salt solution. A suspension of spores from the organism isolated from the eye was made in sterile salt solution. To each dilution of the various serums was added an equal quantity of the suspension of spores and the suspension of leukocytes, the mixture incubated at 37 C. for thirty minutes, and smears made and stained with carbol-thionin. The number of leukocytes engaged in phagocytosis was now determined in each case, 100 white cells being counted. A serum-free mixture of leukocytes, suspension and salt solution treated in the same manner served as a means of control, the dilution of serum in which no more cells engaged in phagocytosis than in the serum-free mixture being called the point of opsonic extinction (Table 2).

TABLE 2.—OPSONIFICATION OF SPORES OF SPOROTHRIX BY PATIENT'S SERUM (NORMAL) = 1:12)

| Date | Opsonic Extinction at Dilution of: |
|---|---|
| 6/20 | 1:12 |
| 7/ 3 | 1:12 |
| 7/18 | 1:48 |
| 7/22 | 1:24 |
| 7/23 | 1:96 |
| 7/24 | 1:192 |
| 7/25 | 1:192 |
| 7/29 | 1:96 |
| 8/ 2 | 1:96 |
| 8/ 6 | 1:96 |
| 8/10 | 1:192 |
| 8/14 | 1:192 |
| 8/18 | 1:192 |
| 8/26 | 1:96 |

As the patient had worked with five strains of sporothrix, experiments were made to determine if possible which strain caused the eye infection. Four of these strains were obtained from Dr. D. J. Davis.

1. A culture which had been obtained from Dr. Gougerot and supposedly typical of the sporothrix called "sporothrix de Beurmanni."

2. A culture isolated by Dr. Hektoen in 1898 from a case of typical sporotrichosis.
3. A culture isolated by Dr. D. J. Davis from a case of sporotrichosis.
4. A culture isolated by Dr. K. F. Meyers from lesions on horses suffering with lymphangitis.
5. A strain isolated by Dr. Benjamin F. Davis from subcutaneous sporotrichosis on the hand and arm of a woman.

Comparison of the organism isolated from the eye in this case, with the other strains by ordinary cultural methods, in smears, and in hanging drop preparations, showed no differences, and immunologic tests gave the same reactions with the various strains, as is shown in the summary (Table 3).

TABLE 3.—AGGLUTINATION TESTS WITH THE PATIENT'S HEATED SERUM AND THE DIFFERENT STRAINS OF SPOROTHRIX

| | Strain of Sporothrix | | | | | Our Case |
|---|---|---|---|---|---|---|
| Date | A | B | C | D | E | F |
| 7/ 3 ....... | 0 | 0 | 0 | 0 | 0 | 0 |
| 7/18 ....... | 1:16 | 1:16 | 1:12 | 1:16 | 1:16 | 1:16 |
| 8/ 6 ....... | 1:64 | 1:64 | 1:64 | 1:48 | 1:64 | 1:64 |
| 8/10 ....... | 1:32 | 1:64 | 1:64 | 1:64 | 1:32 | 1:64 |
| 8/26 ....... | 1:32 | 1:32 | 1:24 | 1:32 | 1:32 | 1:32 |

These results are analogous to those obtained by Dr. D. J. Davis[3] with the serum of immunized animals, and indicate that there is no essential difference in the agglutination of various strains of sporothrix. Experiments were then made with the same serum to determine also the point of opsonic extinction of the various strains.

TABLE 4.—OPSONIFICATION OF VARIOUS STRAINS OF SPOROTHRIX WITH PATIENT'S SERUM

| | Point of Opsonic Extinction with Strains | | | | | Our Case |
|---|---|---|---|---|---|---|
| Date | A | B | C | D | E | F |
| 7/ 3 ....... | 1:12 | 1:12 | 1:12 | 1:12 | 1:12 | 1:12 |
| 7/18 ....... | 1:48 | 1:24 | 1:48 | 1:48 | 1:24 | 1:48 |
| 8/ 6 ....... | 1:96 | 1:96 | 1:96 | 1:96 | 1:48 | 1:96 |
| 8/10 ....... | 1:96 | 1:192 | 1:192 | 1:192 | 1:192 | 1:192 |

Tests were also made with both heated and unheated serums of normal persons, of a woman with sporotrichosis of the right hand and arm and of rabbits immunized with suspension of sporothrix spores. In all of these it was impossible to differentiate in any degree the various strains of the organism by means of opsonic extinction.

## PREVIOUSLY REPORTED CASES

The number of reported cases of infection of the eye or its adnexa with sporothrix is not large, and a brief review of the reports of them is instructive in this connection. The first case of sporotrichosis of the eye was reported by Danlos and Blanc[4] in 1907.

Case 1.—A man, aged 63, had a granulating ulcer on the lower lid near the outer angle. It began as a small white spot which suppurated and formed an ulcer that gradually increased in size. The lower lid was congested and swollen, especially at the outer angle, where the conjunctiva was reddened and edematous. The lesion, 1.5 cm. in diameter, was covered with red and firm granulations, and at several points a little pus exuded. The preauricular glands were normal, but a slightly enlarged gland was noticed under the maxilla. For several years previous to this ulcer a swelling had existed on the right wrist. Cultures from the lid gave typical growths of sporothrix. Local treatment with iodin was of no avail; after four months the ulcer was excised.

Case 2.—The first undoubted *primary* case of sporotrichosis of the eye was reported in 1908 by Morax and Carlotti.[5] It occurred in a man aged 70 who had a lesion on the left upper eyelid for several weeks. The entire left upper lid and the skin for several millimeters over the eyebrow was red and swollen; a curved line of small yellowish projections which had appeared like small intracutaneous or subcutaneous abscesses extended down from the inner end of the eyebrow to the outer commissure of the eye. In addition a number of shallow ulcerations, covered by an abundant yellowish exudate, were present along the free border of the lid. These lesions were not painful and the lid was only slightly tender on pressure. No other part of the eye seemed to be affected. The large lymphatic trunk extending from the external commissure to the preauricular gland was swollen and hard, and the overlying skin inflamed. At one point a soft yellowish enlargement indicated a small abscess. In a general manner the trunk took an S-shaped curve through the enlarged preauricular, angulomaxillary and submaxillary glands. The preauricular gland was tender and movable and about the size of an almond; the other glands were not so large. This swelling began one week after the onset of the lesion. Microscopic examination of the pus from the abscesses on the lid was negative, but cultures gave growths of sporothrix three days after inoculation. The patient was placed on 2 gm. of potassium iodid a day; in twenty days the ulcers were healed and in a little more than two months all evidence of the trouble had disappeared.

Case 3.—In the case reported in 1909 by Thibierge and Gastinet,[6] a man aged 30 developed a small granuloma on the left external palpebral commissure; later a generalization of these lesions appeared over the entire body. By extension from the original lesion a crescentic ulceration involved most of the lower lid as well as the bridge of the nose. The surface was covered more or less with crusts which on removal disclosed a deeply ulcerated area. The free border of the lid was infiltrated, and swollen, with some degree of ectropion, but not ulcerated. On the upper lid were two small reddish-brown nodules. The palpebral conjunctiva was reddish throughout. Cultures from the exudate and scrapings of the ulcers gave growths of sporothrix. Complete recovery followed treatment with potassium iodid.

Case 4.—Burnier[7] described in 1909 a case in a boy, aged 16, with several subcutaneous nodules on the hand, some of which ulcerated, leaving sinuses discharging pus. At the time of ulceration, reddening and a slight swelling of the eyelids were noticed. There were three hard and tender nodules, split-pea in size near the external canthus of the right lower lid; also four or five smaller nodules in the inferior culdesac of the eye. The conjunctiva was not ulcerated, nor were the glands involved. Local cauterization with silver nitrate and galvanic needle followed by healing in about two months; the nodules on the hand resisted treatment. Inoculation of tubes with pus obtained from incision of the nodules demonstrated sporothrix. After one month's treatment with potassium iodid the nodules disappeared.

Case 5.—A generalized sporotrichosis in a man aged 65, was reported in 1909 by deBeurmann and Gougerot.[8] One morning the patient noticed that one of his eyes was congested, but without pain or tenderness on pressure. This condition persisted for two months, when the periorbital region became tender; photophobia developed and the cornea became dim and later ulcerated. The ulcerating keratitis was followed by hypopyon, anterior staphyloma, perforation of the cornea, escape of the vitreous and loss of the eye, all in a few days. No cultures seem to have been made from the eyes, but sporothrix was recovered from other sources. This seems to have been a metastatic panophthalmitis from general sporothrix infection.

Case 6.—Morax[9] in 1909 reported sporotrichosis of the eye in a woman aged 38. Small yellowish-white nodules appeared in rapid succession in the right semilunar fold, ulcerating later and producing pedunculated lesions. A similar lesion appeared in the lower retrotarsal fold and another in the upper. There was considerable induration in both lids with an increase in the secretion. The caruncular region was injected, while the bulbar conjunctiva and the cornea appeared normal. The cervical and preauricular glands became enlarged on the second day of the disease, and in a few days were quite tender on pressure. Under surgical treatment and local application of silver the symptoms became worse. As cultures gave growths of sporothrix, treatment with potassium iodid was instituted, and healing took place. The serum of the patient caused agglutination of sporothrix on the thirty-second day of the disease, clumping occurring almost at once in dilutions of 1:10, and in from thirty to sixty minutes in dilutions of 1:200. The blood-count was 65 per cent. polynuclears, 18.5 per cent. mononuclears, 13.5 per cent. lymphocytes and 3 per cent. eosinophils.

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[3] Davis, D. J.: Interagglutination Experiments with Various Strains of Sporothrix, Jour. Infect. Dis., 1913, xii, 140.

[4] Danlos and Blanc: Un cas de sporotrichose palpebral, Bull. et mém. Soc. méd. d. hôp. de Paris, 1907, xxiv, 1450.

[5] Morax and Carlotti: La sporotrichose palpébrale, Ann. d'ocul., 1908, cxxxix, 418.

[6] Thibierge and Gastinet: Trois cas de sporotrichose dermo-hypodermique dont un avec lesions du pharynx, du larynx et du tibia, Bull. et mém. Soc. méd. d. hôp. de Paris, 1909, xxvi, 537.

[7] Burnier: Un cas de sporotrichose gomeuse hypodermique ulcéreuse disseminée, Ann. d'ocul., 1909, cxli, 344.

[8] De Beurmann and Gougerot: Sporotrichose cachectisante mortelle, Bull. et mém. Soc. méd. d. hôp. de Paris, 1909, xxvi, 1046.

[9] Morax: La sporotrichose de l'appareil visuel, Ann. d'ocul., 1909, cxli, 321.

Case 7.—A. Fava[10] recorded in 1909 an infection of his own eye which is remarkable in that the mode of infection is known. While injecting an emulsion of sporothrix into a rabbit, droplets accidentally infected the eye. Half an hour later he washed his eyes with a 1:4,000 solution of oxycyanid of mercury. No symptoms appeared until eleven days later, when he noticed a sensation as of a foreign body in the outer corner of the lower lid. On examination a small yellow spot was seen on the lower tarsal conjunctiva, and the eye was congested and slightly tender on pressure. The following day the tenderness increased and there was a slight edema of the lids; the preauricular and angulomaxillary glands were enlarged and tender. Several other nodules also appeared on the lower tarsus, one 3 mm. in diameter and several smaller ones on the upper. Three days later a small nodule appeared on the outer surface of the upper lid. All the nodules ulcerated and developed granulations like those following a broken chalazion. The lids were swollen and the whole conjunctiva congested, and the secretion increased. Cultures from the ulcerated nodules gave sporothrix, and microscopic examination of the secretion demonstrated an abundance of eosinophils and some sporotrichal forms. On the fifteenth day of the disease there were 6,000 leukocytes with 8 per cent. of eosinophils. Recovery occurred in about two and one-half months of treatment with potassium iodid, from 2 to 8 gm. a day.

Case 8.—Another case of generalized sporotrichosis of the skin and subcutaneous tissues in which there were symptoms of eye involvement is reported by Jeanselme and Chevalier.[11] Seven weeks after the appearance of the nodules on the body the conjunctiva of the right eye became congested. The right pupil was obstructed by an exudate and could not be dilated with atropin. A few days later the iris became discolored and vision greatly decreased. Simultaneously there appeared an ulcerated nodule in the mouth. No cultures were made from the eyes, but sporothrix was obtained from lesions elsewhere.

Case 9.—Morax and Cruchaudeau[12] describe a case in a woman aged 22, who first noticed a slight redness of the left eye accompanied by some sense of discomfort and increased lacrimation. The lower lid was swollen and on the tarsal conjunctiva was a yellow ulcerating nodule, from which sporothrix was isolated in culture. A few days previous to the inoculations the serum agglutinated sporothrix at a dilution of 1:50. Tender and enlarged preauricular glands accompanied the eye lesion. After one month's treatment with potassium iodid all the symptoms disappeared.

Case 10.—A case in which the eyelids were affected by direct extension is reported by Velter.[13] A man aged 52 had a small abscess on the right lower lid which had existed for three weeks, causing considerable pain. The lid was swollen, its skin smooth and red; incision released a large amount of pus. The surrounding tissues were indurated. The eyeball appeared normal, but the bone at the outer and inferior wall of the orbit was eroded. Cultures from the lid showed sporothrix. A similar nodule appeared on the upper lid, but at no time was there any involvement of the conjunctiva or marked glandular enlargement. Potassium iodid gave good results.

Case 11.—Jeanselme and Poulard[14] describe the case of a man aged 46, who had an amputation of the leg for a tumor of the bone, followed several years later by a generalized eruption of small red and hard nodules on the face and body. One of these nodules occurred on the outer surface of the left lower eyelid just below the margin. The anterior part of the eyeball was injected, and the pupil narrowed, irregular and obstructed by an exudate, but there was no infiltration of the cornea. Posterior synechia and discoloration of the iris were present, and there was pain, photophobia and decreased vision. The generalized eruption proved to be sporotrichosis; the eye lesion was regarded as sporotrichal because it also was healed, under the use of potassium iodid.

Case 12.—The only case reported in the United States is by Gifford.[15] A woman, aged 18, complained that the left eye was congested and slightly uncomfortable, the condition having lasted for about two months without any marked change. When seen the right eye appeared normal. The left eye was inflamed and watery, the tarsal conjunctiva and retrotarsal folds being slightly congested. On the ocular conjunctiva a somewhat crescentic thickening extended from a little above the equator at the inner side of the cornea to a point ⅛ inch above the horizontal meridian at its outer side. This thickening was ¼ inch broad and smooth at its widest part but nodulated with lumps from 1/16 to 3/32 inch in diameter, at the extremities. One of these nodules was yellow and contained a semifluid substance, from which sporothrix was isolated by culture. Treatment by potassium iodid seemed to be effective, but the patient disappeared from observation before complete recovery.

Case 13.—Morax[16] reported the first case of infection of the lacrimal sac by sporothrix. A man, aged 40, complained of watering and a feeling of weakness in his left eye, followed in a short time by swelling and inflammation of the lacrimal region and the appearance of pus at the level of the internal commissure. Three weeks after the onset, suppurative dacryocystitis with prelacrimal abscesses developed. The lacrimal sac was swollen and on gentle pressure pus exuded from both superior and inferior puncta. The skin over the region was somewhat infiltrated. After incision and withdrawal of yellow purulent material, a sound could be passed into the nose.

Case 14.—In the case of Chaillous,[17] the patient complained of matting of the eyelids after sleeping, this condition lasting for eighteen days before examination. The right upper lid was swollen, reddened and edematous. On the tarsal conjunctiva were numerous yellow nodules, from pin-head to split-pea in size, irregular in form and slightly ulcerated. The bulbar conjunctiva was less congested. A preauricular and a superficial cervical gland became quite tender and enlarged. Cultures from the ulcerated nodules showed sporothrix.

Case 15.—LaPersonne[18] describes a case in a woman aged 64 who, during the course of numerous subcutaneous and periosteal lesions, developed a violent iridocyclitis of the left eye with deposits on the posterior surface of the cornea and a nodule on the iris. The anterior chamber of the eye became involved, accompanied by pain in the ciliary region. The eye softened and vision was almost lost. Punctures of the anterior chamber liberated a yellowish albuminous fluid from which no diagnosis could be made. Two months later another similar lesion appeared and perforated the coat of the eyeball. A fungus was demonstrated among the débris of the iris and exudate, and a few days afterward sporothrix was obtained in culture. The patient bore potassium iodid poorly, and finally the eye was enucleated because of the pain.

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[10] Fava · Un cas de sporotrichose conjunctivale et palpébrale primitive, Ann. d'ocul., 1909, cxli, 338.

[11] Jeanselme and Chevalier: Sporotrichose à foyers multiples, Bull. et mém. Soc. méd. d. hôp. de Paris, 1910, xxix, 784.

[12] Morax and Cruchaudeau: Sporotrichose conjunctivale primitive, Ann. d'ocul., 1910, cxliv, 69.

[13] Velter: Un cas de sporotrichose orbito-palpébrale primitive, Ann. d'ocul., 1910, cxliv, 65.

[14] Jeanselme and Poulard: Sporotrichose de l'iris, Ann. d'ocul., 1910, cxliv, 65.

[15] Gifford: Sporotrichosis of the Eyeball and Eyelids, Ophth. Rec., 1910, xix, 573.

[16] Morax: Sporotrichose primitive du sac lacrymal, Ann. d'ocul., 1911, cxlv, 49.

[17] Chaillous: Sporotrichose conjunctivale primitive, Ann. d'ocul., 1911, cxlv, 47.

[18] LaPersonne: Sporotrichose oculaire, Presse méd., 1912, xx, 93.

Case 16.—*The last case described is by Morax*[19] in a man aged 37, who had nodular lesions on the skin of the thighs and a nodule on the outer surface of the lower lid, below the internal palpebral ligament. This nodule was violet-red, firm and easily movable without pain. It was about 0.7 cm. in diameter and projected 2 mm. above the surface, with the center slightly depressed like a lacrimal fistula. The conjunctiva appeared normal and there was no cutaneous reaction or congestion of the surrounding tissues. Exploration by means of a probe showed that there was no connection of the lesion with the eye. Cultures from this nodule gave sporothrix. Cure followed treatment with potassium iodid.

In experiments by Fava[20] and others, following the injection of a culture of sporothrix into various parts of the eye of a rabbit, lesions were produced resembling those of sporothrix infection of the human eye. The incubation period generally lasted from twelve to eighteen days. The organism was recovered from the eye lesion.

### CLINICAL CONSIDERATION

From a study of the cases that have been recorded and of the one we have observed, we should say that *infection of the conjunctiva by sporothrix* causes a marked congestion of the membrane, particularly the palpebral portion, the fornix and the semilunar folds. The bulbar portion is not so frequently infected.

Numerous follicular prominences appear in the palpebral conjunctiva and in the fornix.

Small yellowish nodules, varying in size and shape, develop rapidly in the conjunctiva, and these may ulcerate. When opened, the contents of the nodules do not escape rapidly as from small abscesses, but seem to be of a gummy consistence. These little nodules developed so rapidly in the case we observed that on the second day new ones presented that had not been seen the day before.

Secretion is rather scanty and hardly sufficient to stick the lids together at night, but lacrimation is rather abundant. The eyelids are somewhat edematous and thickened, and palpation shows a well-marked induration of the subcutaneous tissue. Enlargement and tenderness of neighboring lymph-glands is also present.

Subjectively, there is a sensation of a foreign substance under the lids, and so much discomfort that use of the eyes is almost impossible. The discomfort comes on rapidly after the infection. The two cases of laboratory infection (that of Fava and the present one) and the absence of a history of trauma in the other cases, seem to show that the sporothrix is able to penetrate the normal conjunctiva. It also appears from the reports of cases that infection of the eye may be secondary to a generalized sporotrichosis. Probably in most of these cases the infection is ectogenous, but the suspicion that it may be endogenous is aroused by the case of LaPersonne, in which, after a violent iridocyclitis and perforation of the eyeball, sporothrix was obtained from the contents of the bulb.

That general symptoms may arise from a primary lesion of the eye is indicated *in our case by the* fever, leukocytosis and pains in the bones of the extremities.

### DIAGNOSIS

*Some of the clinical features of this infection* are common to other conditions. Lymphadenopathy would be present with chancre of the conjunctiva, but in the initial lesion of syphilis it is very unusual to have such multiple erosions or ulcerations, and scrapings from such an ulcer would probably show the characteristic spirochete.

Tuberculosis of the conjunctiva would probably not be so rapid in its course, and it would be a week or more before the caseous tuberculous nodule would break down and form the ulcer, whereas in sporotrichosis the little ulcers develop in a few days.

*Parinaud's conjunctivitis* presents more points of similarity, and it is possible, as mentioned by Morax, that cases of sporotrichosis may have been mistaken for Parinaud's conjunctivitis.

In the latter, the vegetations on the conjunctiva are different from the follicles and the yellowish nodules of sporotrichosis. The adenopathy in Parinaud's conjunctivitis points to a severe infection, but all attempts to isolate an organism from the lesions have failed. Recently, however, Verhoeff has observed in such conditions an organism like leptothrix. On the other hand, the diagnosis of sporotrichosis is easy if scrapings from the nodules or ulcers are inoculated on appropriate mediums and left at from 18 to 20 C. for the organisms appear in from three to ten days. The presence of Gram-positive, spore-like bodies in a direct smear from the conjunctiva should suggest sporothrix.

We wish to acknowledge the kindness of Dr. L. Hektoen, director of the Memorial Institute for Infectious Diseases, for valuable suggestions offered in the study of this case.

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# CLINICAL REPORT OF FIVE HUNDRED AND SEVENTY-ONE CASES OF PULMONARY TUBERCULOSIS TREATED WITH TUBERCULIN *

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Early in the spring of 1910, and following my presentation of a short paper on tuberculin at one of the meetings of the medical staff of the Otisville Sanatorium, of which I was a member, Dr. E. S. McSweeny, the physician then in charge, asked me to reorganize the tuberculin class among the patients.

After rather an extensive perusal of much of the literature on the subject, I was struck by the divergent views held by the different investigators on tuberculin therapy in general and the matter of dosage and reaction in particular. I then decided to lay aside all my preconceived notions on tuberculin and begin injections with a dose well below any possible reaction, such as 0.000,000,01 gm., and to double each previous dose at weekly intervals, using Koch's B. E. In the last year of this work, patients in the class were started on Koch's Old Tuberculin exclusively, and when they were standing well from 0.003 to 0.006 gm. at a dose, they were then changed to Koch's B. E., 0.000,1 gm., which was later progressively increased according to the table. The gain was twofold: there were less reactions to the smaller doses on account of the O. T. being weaker, and there were also fewer reactions to the larger doses of B. E. because of the previous immunizing effect of the O. T. Incidentally, the patients were thus immunized to both the endogenous and the exogenous toxins of the bacillus. After over two thousand injections were given of less than 0.000,001 gm. each, with not a single reaction in any one of them, I decided that this amount was needlessly small to begin with, after which injections were begun with 0.000,001 gm. B. E. As a matter of fact, the earliest reaction dose was clinically found to be about four times as large, namely, 0.000,004 gm. B. E.

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[19] Morax: Sporotrichose primitive des paupières simulant une fistule lacrymale, Ann. d'ocul., 1913, cxlix, 183.

[20] Fava: Sporotrichose expérimentale de l'appareil oculaire du lapin, Ann. d'ocul., 1910, cxliv, 77.

* From the Department of Health Sanatorium for tuberculosis at Otisville, New York.

One reason for trying to make the tuberculin treatment as brief and decisive as the patient's tolerance would permit was due to the short stay in the institution of the average patient (about five months), which practically excluded the method of administering very small doses of tuberculin over long periods of time. The idea was to have each dose come as near as possible to producing a clinical reaction without actually doing so, as whatever advantage there may be in beginning treatment with very small doses very slowly increased in those who have the time and means to carry it out, it is entirely unsuited to the vast number of curable tuberculous patients who have their living to make, and cannot spend more than about six months in a sanatorium, to say nothing of the fact that after all, tuberculin such as B. E. is no more than a vaccine, in the successful use of which one must apply the same rules as govern vaccine therapy in other diseases in which we know that the prolonged administration of minute doses will lead to no therapeutic results, though it may produce an immunity to itself.

The cases were unselected male patients,[1] varying in age from 16 to 50, the great majority of whom were moderately advanced, or the so-called Stage II (Turban). The other treatment of the patients in the class, such as rest, exercise, etc., differed in no respect from those who did not receive tuberculin. The dilutions of the tuberculin used were made with sterile normal saline, no preservative being added. The diluted tuberculin was put up in sterile rubber-stoppered vials of 5 c.c. capacity, and were kept in the ice-chest. What was left in the vial at the end of the day it was used, was discarded. The tuberculin was diluted fresh from the stock bottle every three weeks. The O. T. was that prepared in the research laboratories of the department. The B. E. was Mulford's and Alexander's, 0.005 gm. to the cubic centimeter. The number of patients in the class at any one time varied from seventy-five to 110, and the period covered by the subject-matter of this paper was from June, 1910, to January, 1913, or two and a half years in all.

The actual injections were made under strictly aseptic conditions, and were given hypodermically in the outer aspect of the upper arm, except for the large doses such as 0.001 gm. B. E. and over, which were always given in the back between the vertebral border of the scapula and the spine, the two sides being used alternately. No undesirable local by-effects were noted except occasional slight tenderness, though sterile "abscesses" may develop at the site of injection of large doses of B. E., resulting from the intense local *Stichreaktion*.

In passing, mention should be made of the great *difference existing in the minds of tuberculous patients* between the tuberculin treatment of tuberculosis and the other accepted therapeutic measures as used in our sanatoriums. Custom has given the patient latitude in choosing or rejecting (particularly the latter) tuberculin injections often against the physician's advice in the matter, in contradistinction to stropping the chest, rest in bed, taking cough-mixtures, etc. In these hardly any patient dreams of questioning his physician's judgment and skill; but let tuberculin be suggested, and the patient immediately puts himself on the defensive. Not only were we hampered in recruiting new members in the class, but it was hard to keep many otherwise desirable patients after they joined. If the patient happened to be injected with tuberculin earlier in the day before being weighed, and found that he had lost some pounds during the week, the tuberculin was to blame, etc., on the strength of which he would not only refuse further treatment himself, but would try to get other members in the class to refuse also. The result was that while half of the patients in the class dropped out because they were leaving the institution, the other 50 per cent. refused further treatment with tuberculin for reasons no better than the foregoing. Practically none were found to be unsuitable for treatment once they were in the class, because no matter how hypersensitive to tuberculin a patient was found to be, the dose could always be attenuated to his tolerance.

The terms "reaction" and "allied conditions," as used in this work, were standardized for purposes of comparison as follows:

$$\text{Clinical Tuberculin Reaction} = \begin{cases} \text{Afebrile} \begin{cases} a \\ b \end{cases} \\ \text{Febrile} \end{cases}$$

Persistent Accentuated Symptoms.

All tuberculous persons in the active, and many even in the quiescent stage of the disease, will react subjectively, and often clinically, to very small doses of tuberculin, such as 0.000,000,1 and 000,000,01 gm. B. E., or even less. The term "reaction" as used in that sense is practically always *afebrile* and is defined as: (*a*) a distinct change in subjective sensation, difficult to define, but quite a real condition to the one injected, which, while hardly pronounced enough to make the person feel sick, yet is far from agreeable; (*b*) a condition occurring in less than twenty-four hours after the injection of tuberculin characterized by the presence of some or all of the following: slight feeling of malaise, mild disinclination to food, and greater ease because more fluid expectoration. These conditions occurring and to be expected in practically all cases were, therefore, not looked on as a reaction in the clinical sense, and not of enough importance in themselves to affect the progressive increase in dosage.

The kind of reaction which did affect the progressive dose increase follows tuberculin injection usually within less than *twenty-four hours*, and is characterized by the presence of some or all of the following: distinct increase in cough and expectoration, also headache, anorexia, pain in back and joints, with lassitude, sufficiently pronounced to make it inadvisable either for the patient so affected or for the physician treating him to continue him at his exercise. This condition is usually, but may not be, accompanied by a rise in temperature from 99.5 to 103 and more.

The term "persistent accentuated symptoms" was used to define the condition of a tuberculous patient (who may or may not use tuberculin), when for an indefinite period of time his cough, expectoration, temperature-curve and nutrition show a distinct tendency for the worse. This was considered of sufficient importance either to stop tuberculin injections altogether until the symptoms subsided, or else materially to diminish the weekly tuberculin dose. In other words, it was *acted on* the same as a tuberculin reaction.

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[1] The clinical impressions and conclusions were really drawn from about two hundred more cases (all female), making a total of seven hundred and fifty cases in all, but unfortunately the collected records of the former have been mislaid.

TABLE 1.—LENGTH OF TIME INDIVIDUAL PATIENTS WERE UNDER TREATMENT WITH TUBERCULIN

| Patients |  | No. of Weeks per Patient | Total No. of Weeks |
|---|---|---|---|
| No. | Per Cent. |  |  |
| 92 | 16.1 | 1 | 92 |
| 89 | 15.5 | 2 | 118 |
| 34 | 5.9 | 3 | 102 |
| 37 | 6.3 | 4 | 148 |
| 19 | 3.3 | 5 | 95 |
| 22 | 3.8 | 6 | 132 |
| 26 | 4.5 | 7 | 182 |
| 32 | 5.6 | 8 | 256 |
| 22 | 3.8 | 9 | 198 |
| 18 | 3.1 | 10 | 180 |
| 4 | 0.7 | 11 | 44 |
| 8 | 1.4 | 12 | 96 |
| 21 | 3.6 | 13 | 273 |
| 4 | 0.7 | 14 | 56 |
| 11 | 1.9 | 15 | 165 |
| 10 | 1.7 | 16 | 160 |
| 4 | 0.7 | 17 | 68 |
| 11 | 1.9 | 18 | 198 |
| 9 | 1.5 | 19 | 171 |
| 6 | 1.0 | 20 | 120 |
| 6 | 1 0 | 21 | 126 |
| 8 | 1.4 | 22 | 176 |
| 4 | 0.7 | 23 | 92 |
| 3 | 0.5 | 24 | 72 |
| 3 | 0.5 | 25 | 75 |
| 5 | 0.8 | 26 | 130 |
| 3 | 0.5 | 27 | 81 |
| 7 | 1.2 | 28 | 196 |
| 2 | 0.3 | 29 | 58 |
| 3 | 0.5 | 30 | 90 |
| 3 | 0.5 | 31 | 93 |
| 3 | 0.5 | 32 | 96 |
| 5 | 0.8 | 33 | 165 |
| 4 | 0.7 | 35 | 140 |
| 1 | 0.1 | 36 | 36 |
| 2 | 0.3 | 39 | 78 |
| 1 | 0.1 | 40 | 40 |
| 1 | 0.1 | 41 | 41 |
| 3 | 0.5 | 42 | 126 |
| 6 | 1.0 | 43 | 258 |
| 1 | 0 1 | 44 | 44 |
| 1 | 0.1 | 46 | 46 |
| 1 | 0 1 | 49 | 49 |
| 16 | 2.8 | * | 1,248 |
| 571 | 100— | 11.3 | 6,470 |

* Eighteen months each or 78 weeks.

On the occurrence of a clinical reaction, tuberculin was discontinued until all symptoms of the same had subsided, when injections were recommenced with fourth lower dose removed. Only the two conditions "clinical reaction" and "persistent accentuated symptoms" were considered in influencing tuberculin dosage.

A clinical tuberculin reaction occurring in the course of treatment in no demonstrable way permanently influences for the worse either the disease or the subsequent course of tuberculin treatment, as the same patients later stand with impunity many times the dose at which they formerly reacted.

If a large dose is reached too quickly, a hypersensitiveness to tuberculin supervenes, necessitating going back to a very small dose indeed. The determination of dosage is purely arbitrary, as sensitiveness differs not only in different patients, but at different times in the same patient. On the other hand, should a reaction occur after a large dose with a slowly progressive dose increase, it merely shows the limit of that patient's maximum tolerance to tuberculin for the present, after which it is best to leave off injections for a time, according to results obtained.

While a patient who has once been thoroughly treated with tuberculin probably never reacts to his disease the way he did before treatment, yet the immunity so acquired to the tuberculin does not last much over two months, if that long, although the good effect persists for a variable time after the acquired immunity to tuberculin has been lost.

Much has been said of the mental effect of tuberculin, as if that were something separate and distinct from its physical effects. If the psychic effect is for good, it is because the tuberculin is having a favorable influence on the lesion and the patient feels more nearly normal owing to diminished toxemia. If the patient feels depressed after tuberculin, it is due to doses which are either too large, or given at too frequent intervals, or both. In other words, the patient is near a clinical reaction, and his depression is nothing less than its earliest manifestation.

Tuberculin may be *tried* in all cases of pulmonary tuberculosis of whatever stage, provided the patient is given a small enough dose, with the effects carefully watched. At Dr. Turban's sanatorium, in Davos Platz, Switzerland, which I visited early in the spring of 1912, they use as small a dose as 0.000,000,000,1 gm. Bovine T. R., and they assert that if persisted in, it will often bring a patient's temperature down to normal, when other measures fail. Tuberculin, however, is to be *used* in all cases which run the chronic course, so common in this disease, particularly in the vast number of patients whose improvement seems to have stopped short of a clinical cure under sanatorium treatment alone, and also in those patients who, for one reason or another, cannot leave their families and affairs and go to a sanatorium in the country.

While not sufficient time has elapsed after the treatment of the patients on whom this report is based, to permit any conclusions from the effect of the treatment, on their own prognosis, there is good authority for the statement that the clinically cured, following the use of tuberculin, are not so apt to relapse, or to develop tuberculous complications, as those who had sanatorium care alone.

TABLE 2.—NUMBER AND DOSES OF B. E. TUBERCULIN INJECTIONS WITH PERCENTAGE OF REACTIONS AND PERSISTENT ACCENTUATED SYMPTOMS

| Dose Gm. | No of Injections | Reaction |  | Persistent Accentuated Symptoms |  |
|---|---|---|---|---|---|
|  |  | No. | Per Cent. | No. | Per Cent. |
| 0 000.000.001 to 0.000.001 | 2.040 | 0 | ... | 0 | ... |
| 0.000.001 | 275 | 0 | ... | 0 | ... |
| 0.000,002 | 272 | 1 | 0.3 | 0 | ... |
| 0.000,004 | 261 | 0 | ... | 5 | 1.9 |
| 0.000,008 | 232 | 3 | 1.2 | 7 | 3.0 |
| 0.000,016 | 211 | 5 | 2.3 | 3 | 3.3 |
| 0.000,032 | 182 | 5 | 2.7 | 3 | 1.6 |
| 0.000,064 | 163 | 6 | 3.6 | 4 | 2.4 |
| 0.000.1 | 171 | 4 | 2.3 | 2 | 1.1 |
| 0.000,2 | 155 | 7 | 4.5 | 3 | 1.9 |
| 0 000.4 | 151 | 8 | 5.2 | 0 | ... |
| 0.000,8 | 71 | 6 | 8.1 | 4 | 5.4 |
| 0.001 | 115 | 19 | 16.5 | 0 | ... |
| 0 001,25 | 37 | 5 | 13.5 | 1 | 2.7 |
| 0.001,5 | 26 | 3 | 11.5 | 0 | ... |
| 0.001,75 | 18 | 2 | 11.1 | 0 | ... |
| 0.002 | 54 | 5 | 9.2 | 2 | 3.7 |
| 0.003 | 23 | 2 | 8.6 | 0 | ... |
| 0.004 | 10 | 3 | 30.0 | 0 | ... |
| 0.005 | 8 | 0 | .... | 0 | ... |
| 0.006 | 7 | 2 | 28.5 | 0 | ... |
| 0.007 | 4 | 0 | .... | 0 | ... |
| 0.008 | 3 | 0 | .... | 0 | ... |
| 0.009 | 2 | 1 | 50.0 | 0 | ... |
| 0.010 | 1 | 1 | 100.0 | 0 | ... |
|  | 4,515 | 88 | 1.9 | 38 | 0.8 |

### RESULTS

In figuring the result of tuberculin therapy in pulmonary tuberculosis, the most important and at the same time the most difficult factor to standardize is the patient and his disease. For one thing, there is no known way of determining with any degree of exactness the length of time a given tuberculous patient has had the disease, or in other words, his resistance. This fact makes it very difficult to determine accurately how much of the improvement during tuberculin administration was due to that, and how much to the native resistance of the patient to his disease, supplemented by the usual sanatorium treatment. Therefore, until more exact means of determining the extent of the patient's resistance to his infection is discovered, we have to rely solely on clinical observation. One thing which we do know beyond question is the specific effect for good of subcutaneous injections of tuberculin on localized visible forms of tuberculosis in the eye, skin, glands, etc. This has been noted repeatedly by numerous independent observers all over the world. While none but the over-enthusiastic claim as much for it in the treatment of pulmonary tuberculosis, still it is no more than to be expected that it would have some definite good effect in that disease, and I have found this to be as follows:

The first few injections will slightly increase expectoration, making it more fluid, and brought up with less coughing; later on, expectoration and with it cough is distinctly diminished. The tendency to toxic manifestations of the disease such as rapid pulse, dyspnea and slight elevation of temperature on exertion, is inhibited to a great degree in those who receive tuberculin as opposed to those who do not. Routine examination of the sputum will disclose a much greater tendency (50 per cent.) to absence of bacilli in those who are treated. Physical examination of the chest will show the lesion to be much less active; the râles, particularly, will be drier and scant. There is a somewhat better showing in weight increase in the tuberculin-treated.

TABLE 3.—NUMBER AND DOSES OF O. T. TUBERCULIN INJECTIONS WITH PERCENTAGE OF REACTIONS AND PERSISTENT ACCENTUATED SYMPTOMS

| Dose Gm. | No. of Injections | Reaction | | Persistent Accentuated Symptoms | |
|---|---|---|---|---|---|
| | | No. | Per Cent. | No. | Per Cent. |
| 0.000,001 | 262 | 0 | ... | 0 | ... |
| 0.000,002 | 181 | 0 | ... | 0 | ... |
| 0.000,004 | 157 | 3 | 1.9 | 1 | 0.6 |
| 0.000,008 | 153 | 2 | 1.3 | 2 | 1.3 |
| 0.000,016 | 165 | 1 | 0.6 | 2 | 1.2 |
| 0.000,032 | 130 | 0 | ... | 1 | 0.7 |
| 0.000.064 | 103 | 2 | 1.9 | 3 | 2.9 |
| 0.000,1 | 146 | 1 | 0.6 | 0 | ... |
| 0.000,2 | 126 | 3 | 2.3 | 2 | 1.5 |
| 0.000.4 | 83 | 3 | 3.6 | 1 | 1.2 |
| 0.000,8 | 66 | 4 | 6.0 | 1 | ... |
| 0.001* | 0 | .. | ... | .. | ... |
| 0.001,25* | 0 | .. | ... | .. | ... |
| 0.001,5 | 42 | 2 | 4.7 | 1 | 2.3 |
| 0.001,75 | 11 | .. | ... | .. | ... |
| 0.002† | 0 | .. | ... | .. | ... |
| 0.003 | 43 | 2 | 4.6 | 0 | ... |
| 0.004§ | 0 | .. | ... | .. | ... |
| 0.005§ | 0 | .. | ... | .. | ... |
| 0.006 | 15 | 2 | 13.3 | 0 | ... |
| Total | 1,683 | 25 | 1.4 | 14 | 0.8 |

* Not given, as last dose 000.8 was almost doubled to 0.001,5.
† None given, as 0.001.5 was doubled at next dose to 0.003.
§ None given, as 0.006 was given after 0.003.

To sum up, the most constant effects of tuberculin in those who do well under it are the diminished sputum and cough, particularly when the latter is dependent on the amount of sputum, and the distinct tendency for the sputum to become non-bacillary, thus demonstrating clinically the specific effect of the tuberculin on the site of the disease. The other signs of improvement are the natural results of the diminished activity in the lesion.

## SUMMARY

The net results of tuberculin treatment in the patients forming the basis for this paper may be summarized as follows:

1. Those who were distinctly improved and apparently cured (clinically), 25 per cent.

2. The indifferent (60 per cent.), who may be subdivided into (*a*) 40 per cent. who responded indifferently while the tuberculin was continued, but on the cessation of which did distinctly better than before tuberculin treatment, an indeterminate number of whom often come in later under 1, and (*b*) 20 per cent. who remain indifferent.

3. Those who are apparently made worse (15 per cent.); that is, under the use of the same dosage as the others in the class, but who not only come in under 2, but some even under 1, if the tuberculin is given in doses attenuated enough to meet their hypersensitiveness.

TABLE 4.—NUMBER OF PATIENTS AND THEIR HIGHEST DOSE, ALSO PERCENTAGE OF HIGHEST DOSE REACHED TO TOTAL NUMBER GIVEN OF THAT DOSE (B. E. TUBERCULIN)

| Highest Dose Gm. | Patients | | Total No. Given of that Dose | Times this Was the Highest Dose Reached | |
|---|---|---|---|---|---|
| | No. | Per Cent. | | No. | Per Cent. |
| 0.000,001— | 82 | 14.3 | 2,040 | 82 | 4.0 |
| 0.000,001 | 20 | 3.5 | 295 | 20 | 6.7 |
| 0.000,002 | 20 | 3.5 | 272 | 20 | 7.3 |
| 0.000,004 | 21 | 3.6 | 261 | 21 | 8.0 |
| 0.000,008 | 26 | 4.5 | 232 | 26 | 11.2 |
| 0.000,016 | 17 | 2.9 | 211 | 17 | 8.0 |
| 0.000.032 | 16 | 2.8 | 182 | 16 | 8.7 |
| 0.000.064 | 13 | 2.2 | 163 | 13 | 7.9 |
| 0.000,1 | 20 | 3.5 | 171 | 20 | 11.6 |
| 0.000,2 | 10 | 1.7 | 155 | 10 | 6.4 |
| 0.000,4 | 17 | 2.9 | 151 | 17 | 11.2 |
| 0.000,8 | 12 | 2.1 | 74 | 12 | 16.2 |
| 0.001 | 21 | 3.6 | 115 | 21 | 18.2 |
| 0.001,25 | 7 | 1.2 | 37 | 7 | 18.9 |
| 0.001,5 | 3 | 0.5 | 26 | 3 | 11.5 |
| 0.001,75 | 2 | 0.3 | 18 | 2 | 11.1 |
| 0.002 | 26 | 4.5 | 54 | 26 | 48.1 |
| 0.003 | 9 | 1.5 | 23 | 9 | 39.1 |
| 0.004 | 2 | 0.3 | 10 | 2 | 20.0 |
| 0.005 | 3 | 0.5 | 8 | 3 | 37.5 |
| 0.006 | 1 | 0.1 | 7 | 1 | 14.2 |
| 0.007 | 0 | ... | 4 | 0 | .... |
| 0.008 | 0 | ... | 3 | 0 | .... |
| 0.009 | 1 | 0.1 | 2 | 1 | 50.0 |
| 0.010 | 1 | 0.1 | 1 | 1 | 100.0 |

TABLE 5.—NUMBER OF PATIENTS AND THEIR HIGHEST DOSE, ALSO PERCENTAGE OF HIGHEST DOSE REACHED TO TOTAL NUMBER GIVEN OF THAT DOSE (O. T. TUBERCULIN)

| Highest Dose Gm. | Patients | | Total No. Given of that Dose | Times this Was the Highest Dose Reached | |
|---|---|---|---|---|---|
| | No. | Per Cent. | | No. | Per Cent. |
| 0.000,001— | 4 | 0.7 | 4 | 4 | 100.0 |
| 0.000,001 | 45 | 7.8 | 262 | 45 | 17.1 |
| 0.000,002 | 19 | 3.3 | 181 | 19 | 10.4 |
| 0.000,004 | 15 | 2.6 | 157 | 15 | 9.5 |
| 0.000,008 | 17 | 2.9 | 153 | 17 | 11.1 |
| 0.000,016 | 18 | 3.1 | 165 | 18 | 10.9 |
| 0.000,032 | 18 | 3.1 | 130 | 18 | 13.8 |
| 0.000,064 | 21 | 3.6 | 103 | 21 | 20.3 |
| 0.000,1 | 9 | 1.5 | 146 | 9 | 6.1 |
| 0.000,2 | 20 | 3.5 | 126 | 20 | 15.8 |
| 0.000,4 | 16 | 2.8 | 83 | 16 | 19.2 |
| 0.000,8 | 9 | 1.5 | 66 | 9 | 13.6 |
| 0.001 | 0 | ... | 0 | .. | .... |
| 0.001,25 | 1 | 0.1 | 1 | 1 | 100.0 |
| 0.001,5 | 6 | 0.1 | 42 | 6 | 14.2 |
| 0.001,75 | 0 | ... | 11 | .. | .... |
| 0.002 | 0 | ... | 0 | .. | .... |
| 0.003 | 9 | 1.5 | 43 | 9 | 20.9 |
| 0.004 | 0 | ... | 0 | .. | .... |
| 0.005 | 0 | ... | 0 | .. | .... |
| 0.006 | 10 | 1.7 | 15 | 10 | 66.6 |
| 0.007 | 3 | 0.5 | 11 | 3 | 27.2 |
| 0.008 | 0 | ... | 0 | .. | .... |
| 0.009 | 0 | ... | 0 | .. | .... |
| 0.010 | 1 | 0.1 | 1 | 1 | 100.0 |

4. Effect of tuberculin on localized visible tuberculosis such as fistulae in ano, glands, etc., which is specific, particularly in the case of tuberculous glands in the neck, in which condition tuberculin is by far the treatment of choice.

While the number of the distinctly improved and apparently cured under sanatorium care and tuberculin does not appear to be any greater than under sanatorium care alone, the value of the former is in bringing up to the same percentage a type of case that under sanatorium care only would by no means fare so well, if clinical experience is worth anything.

### CONCLUSIONS

As there is no way of telling beforehand what case of pulmonary tuberculosis will benefit the most from tuberculin, every patient with that disease should be treated with tuberculin, and only those ruled out who seem unsuitable by reason of their hypersensitiveness, as proved after injection; and even these may receive all the benefits that tuberculin has to offer, if it is given in small enough doses very slowly increased.

I wish to acknowledge my indebtedness for valuable aid in the work on which this paper is based to Dr. Herman M. Biggs, who as general medical officer of the Department of Health spared no effort to further the scientific interests of the institution; to Drs. Edward S. McSweeny, Walter L. Rathbun and William H. White, my associates at the sanatorium, and to Drs. Charles F. Bolduan, assistant to the general medical officer, and Robert J. Wilson, superintendent to the hospitals of the department, for much valuable criticism of this paper.

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# AN INTERESTING CASE OF CHRONIC LEAD-POISONING WITH RELAPSE FOLLOWING FRESH EXPOSURE *

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The following case, showing the effects of lead intoxication, principally on the nervous system, is presented here because of the fact that it illustrates some interesting points in the clinical course and urinary findings of the condition:

*History.*—Mr. N. E. H., aged 45, weight 151 pounds, height 5 feet 9 inches, was referred to me, Nov. 21, 1913, by Dr. W. H. Hartzell. The family history was negative except that the patient's father, who was a worker in lead, died of paresis due to plumbism. He had had no lead colic, but wrist-drop, ptosis of one eyelid and optic atrophy followed by symptoms of general paralysis of the insane. No members of the family, other than father and son (the patient) were exposed to lead, and hence no additional cases of intoxication occurred in the household. We may, however, assume that susceptibility, which varies markedly in different families, was fairly well marked in that of the patient since he employed the usual precautionary measures with minute care. The patient had had the usual infections of childhood, and had been subject to frequent "attacks of biliousness" since early adolescence. He was married and had been a traveling salesman for the past fifteen years, during which time he had not been in contact with lead except for one and a half days (as described below). From 14 to 30 years of age, however, he had been a house- and sign-painter. During the first seven years of this period, not all his time was devoted to his trade, but from 21 to 30 years of age it was. The patient had used three cups of coffee a day and alcohol in moderation, but no tobacco. He walks from 3 to 5 miles daily in the open air, but otherwise takes no exercise. He denies venereal infection.

*Present Illness.*—At about the time he began to work in lead, he began to be subject to attacks of "biliousness," which recurred frequently at first but later at longer intervals until four years ago, when they disappeared for one year. The symptoms in detail manifested during an attack of "biliousness" are, in the order of development, diplopia, transitory blindness, headache, dizziness, aphasia and repeated vomiting, followed by abdominal soreness lasting one week. The arms become numb and the heart-beat drops frequently to 46 a minute.

Three years ago Mr. H. sandpapered the casings of his home, which was attended with the production of much dust. Following this marked exposure, which lasted only one and a half days, he painted the house alone. Almost immediately the attacks returned in a modified form: vomiting and abdominal soreness were absent, while the diplopia, transitory blindness, vertigo and aphasia were present. At the same time (three years ago) he developed lead arthralgia affecting the entire right arm and the sacral region. All of the foregoing symptoms after persisting a year and a half were relieved by treatment directed to the lead intoxication, principally the use of potassium iodid, lasting four months. The symptoms, however, recurred later, and four months ago he resumed the treatment with immediate improvement, but he soon gave it up. During the past week daily slight attacks occurred. The average duration of one of the paroxysms described above is at present about one hour, but formerly it was not so brief—from two to three hours.

*Laboratory Examinations.*—An examination of the urine resulted as follows: specific gravity 1.020, faintly acid; albumin, glucose, indican and casts were all absent; a few leukocytes and epithelial cells were present. Dec. 5, 1913, Dr. Matthew Beardwood reported that he had found an appreciable quantity of lead in a specimen of the urine which had been submitted to him for chemical analysis.

Blood: Erythrocytes, 4,990,000; hemoglobin, 96 per cent.; leukocytes, 7,400. There was no basic granulation of the erythrocytes.

Physical Examination: This revealed an adult white male, moderately well nourished, musculature fairly good; no evidence of any palsies; reflexes: knee-jerks diminished, Babinski and ankle-clonus absent.

Local Examination: There was no lead-line on the gums, but a faint bluish-black line around a single decayed tooth. Dr. William L. Estes had observed a distinct lead-line in 1912. The heart and lungs were normal. Blood-pressure: systolic, 122 mm. Hg; diastolic, 90 mm. Hg. Abdomen: The liver was slightly enlarged downward; otherwise the examination was negative in its results.

Eyes: These showed interesting changes, as shown by Dr. L. Webster Fox's report, which follows: Marked astigmatism in both eyes and a low-grade muscle insufficiency. Visual fields normal (no reversal of color field). Ophthalmoscopic examination showed marked stasis of the veins, sheaths of both optic nerves thickened, showing evidence of chronic meningeal thickening.

It may be doubted by some whether this case is really one of lead intoxication. The absence of basophilia, however, does not rule out plumbism, for it is generally held at present that it is of little or no diagnostic value. Moreover, Oliver[1] failed to find granules in the blood in 40 per cent. of the cases. Again, the absence of the history of either lead colic or palsies during the time that his occupation entailed exposure to lead, weighs against the diagnosis of saturnism, but does not exclude the condition, since these typical manifestations have been absent in well-authenticated cases to be found in the literature. No evidences of contracted kidney existed in the case here reported. The majority of cases of chronic lead-poisoning that show a progressive tendency, it is true, develop chronic interstitial nephritis, which commonly proves to be a fatal complication, or in other words, the cause of death. In this connection it is to be recollected that my case had improved greatly prior to a fresh exposure to the influence of lead three years ago, and since then, while the peculiar attacks described above recurred in a modified form, they were at no time indicative of a grave tendency. Again, well-marked typical cases of lead intoxication do occur without ensuing chronic interstitial nephritis.

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* Read before the Section on Medicine, College of Physicians, Feb. 24, 1914.

[1] Oliver: Quoted by Alice Hamilton: Industrial Lead-Poisoning in the Light of Recent Studies, The Journal A. M. A., Sept. 7, 1912, p. 777.

While the diagnosis is not based on the history of previous exposure to lead alone on account of occupation, the anamnesis and the attacks which presented such features as diplopia, transitory blindness, dizziness, aphasia, headache, and, for a number of years, vomiting, as well as the finding of the presence of lead in the urine, considered collectively, seemed to warrant an absolute diagnosis. This diagnosis was further confirmed by the previous observation of Dr. Estes of a lead-line on the gums, and the result of the eliminative treatment usually adopted in cases of chronic plumbism. My own case, and the same is true of any obscure condition, makes clear the importance of a careful inquiry into the occupation, past and present, of the patient. Again, an examination of the urine for lead is rarely carried out in the absence of a knowledge of occupational exposure, but it should be undertaken in every obscure condition in which the symptoms are even feebly suggestive of the existence of saturnism.

It is undoubted that lead once absorbed into the system may remain latent for an indefinite period of time "and then again make itself felt" (Hamilton). My own case confirms the observation that brief reexposure to lead, even many years after recovery or cessation of contact with the metal, may result promptly in a recurrence of the symptoms of plumbism. The symptom-complex in the case here reported was quite unique, and it may be questioned whether certain features accompanying the so-called attacks, more particularly the vomiting, aphasia and bradycardia, were not to be attributed to some cause other than chronic lead-poisoning. On the other hand, the diplopia, transitory blindness, headache and dizziness are not unusual in this condition. I have found no reference in literature to aphasia, which was present in my case, as a symptom of saturnism, except in cases attended with well-marked arteriosclerosis.

The brevity of the attacks in my case—from one to three hours—can be satisfactorily explained only on the view of spasm, since there was no evidence of sclerosis of the blood-vessels, unless localized to the cerebral region. For example, the vertigo, associated as it was with slow pulse during the attacks, might be with fair justification attributed to arteriosclerosis affecting the vessels of the brain. The arrest of the attacks, temporarily at least, as the result of appropriate treatment, including glasses, lends support to the spastic nature of the aphasia, and this exciting cause of aphasia is recognized in connection with arteriosclerosis of the cerebral vessels by certain writers.

1605 Walnut Street.

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**Dr. Bell's Contribution to Radium Technology.**—In the *Scientific American* of Sept. 12, 1903, there appeared a letter from Dr. Alexander Graham Bell, in which he suggested the embedding of radium in bodily tissue as a curative agent for deep-seated cancers. This is probably the first suggestion of a method of treatment which is now in vogue among medical men.—*Scient. Am.*

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# THE TECHNIC OF THE INTRADURAL INJECTIONS OF NEOSALVARSAN IN SYPHILIS OF THE NERVOUS SYSTEM

## A PRELIMINARY REPORT

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While it is an undeniable fact that in syphilis of the nervous system the intravenous injection of neosalvarsan is capable of producing subjective improvement, nevertheless the peculiar isolation of the nervous system, and the relative impermeability of its membranes render treatment directed toward this system of little actual avail except subjectively. In tabes, it is true, the pains are frequently ameliorated, the gait is improved, and in rare instances optic atrophy is said to have been arrested by the intravenous injection of salvarsan. The proof, however, that these changes are not lasting, and that they really affect the progress of the disease but little, lies in the objective findings in the spinal fluid. These findings are little, if at all, changed by the treatment intravenously administered. Particularly is this true of the late manifestations of central nervous syphilis. It would seem, therefore, that the future treatment of syphilis in the central nervous system lies in the direct application of the remedy to the nervous tissue itself. The difficulties of such a method of procedure lie not only in the difficulty of administration, but also in the high susceptibility of the nervous tissue itself to foreign substances.

The intradural injection of old salvarsan is impossible, on account of its caustic action from the presence in it of caustic soda necessary to render it neutral. Neosalvarsan injected into the spinal canal was first tried by Wechselmann[1] and then by Marinesco.[2] Both used aqueous solutions, and after their injections it was observed that the patients suffered extreme headache, vomiting, extreme neuralgic pains in the legs, and occasional troubles of urination, all associated with a rise of temperature. Marie and Levaditi[3] also treated cases of general paralysis with injections of neosalvarsan varying in size from 5 mg. to 4 cg. Their results were rather dubious. The results, therefore, of this treatment were in the main unsatisfactory. The treatment of such lesions by salvarsanized serum as practiced by Swift and Ellis[4] has in some hands been of exceedingly great benefit. *A priori* it would seem logical to assume that if treatment by the intradural injections of neosalvarsan could be borne, it would be the method of choice over any other method.

During the past summer I had the opportunity of witnessing intradural injections as practiced by my friend, Dr. Paul Ravaut, at the Hôpital St. Louis, in Paris, in cases of syphilis of the central nervous system. Dr. Ravaut suggested that I carry on the work along his lines in this country.

According to Ravaut, the intradural injections are poorly tolerated on account of technical difficulties rather than on account of the irritative nature of the drug itself. In 1901, those who were interested in injections of cocain for spinal anesthesia found that following the injection of a few centimeters of a cocain solution, patients thus treated suffered from vomiting, fever, headache and more or less neuralgic pain and troubles of urination. At first the origin of these accidents was attributed to the cocain itself or to an idiosyncrasy on the part of the patient. Ravaut and Auberg,[5] in studying these cases, found that this train of symptoms was actually due to an aseptic, sterile meningitis. They were able to demonstrate clearly, in the spinal fluid, cytologic reactions which proved this contention. They established the fact that a watery solution which was not isotonic could produce meningeal irritation, and by substituting cocain in isotonic solutions for solutions previously used, they were able to show that the patients tolerated this with the desired anesthesia and with perfect impunity to harmful results.

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[1] Wechselmann: Deutsch. med. Wchnschr., 1912, xxxviii, 1446.
[2] Marinesco: Ztschr. f. phys. u. diät. Therap., 1913, xvii, 194.
[3] Marie and Levaditi: Bull. et mém. Soc. méd. d. hôp. de Paris, Nov. 18, 1913.
[4] Swift and Ellis: New York Med. Jour., 1912, xcvi, 53. Ibid., München. med. Wchnschr., 1913, xxxvi, 1977. Ibid., München. med. Wchnschr., 1913, xxxvii, 2054.

In 1907 Ravaut[6] showed that hypertonic concentrated solutions were even better tolerated than isotonic solutions. These by reason of their density are not easily diffused. Thus he was able to produce complete genital and perineal anesthesia by the injection of a single drop of water containing 2 cg. of cocain or novocain. If patients thus treated, however, were placed in the Trendelenburg position, there was a very rapid diffusion of the cocain toward the upper portion of the cord and brain, resulting in nausea and vomiting constantly and within a short time. According to the position of the patient, therefore, it became possible to direct the solution toward the inferior or superior portions of the nervous system.

Ravaut employed the method of concentrated hypertonic solutions in the injection of neosalvarsan in the spinal cord, and he has recently published his results, with an account of patients thus treated.[7] Using the following method, as outlined to me by Dr. Ravaut, I have been employing this treatemnt at the University Hospital during the past nine months.

The solution used is a 6 per cent. solution of neosalvarsan in distilled water. This solution is hypertonic. Each drop of such a solution would contain 3 mg. of neosalvarsan. The dosage injected is from 3 to 12 mg.; that is, from 1 to 4 drops of the solution. The solution is made up as follows:

An ampule containing 0.3 gm. of neosalvarsan is dissolved in 5 c.c. of freshly distilled water. If the ampule contains 0.6 gm., 10 c.c. of water are used. In both solutions each drop will contain 3 mg. of the drug. The syringe employed for the injection is accurately graduated in drops. The patient is then placed in a position for a lumbar puncture, either sitting or lying, according to the choice of the operator. The puncture is then made with a needle, the end of which fits the graduated syringe. After a few drops of spinal fluid have flowed out of the cannula, or a greater quantity if a diagnostic puncture is desired at this time, the syringe is fitted into the needle, and the fluid is allowed to run back into the syringe barrel, thus mixing with the amount of the drug in the barrel. The mixed spinal fluid and drug is then gently forced into the canal, and slight suction is made on the syringe to withdraw a second amount of fluid, which washes out the needle. This is then reintroduced, the needle is quickly withdrawn and the patient placed in the Trendelenburg position, in which position he is allowed to remain for at least one hour.

Injections thus given are exceedingly well tolerated. At most there is a slight amount of neuralgic pain, which passes off in a short time. For the most part, however, if carried out properly, the injections are quite painless. A slight amount of neuralgic pain is particularly likely to occur in tabetics. Vomiting does not occur at all. A slight amount of headache such as accompanies a lumbar puncture is, however, sometimes encountered. A slight tendency to difficulty in urination is occasionally experienced a day or two following the injection. In two cases of my own, it persisted, but in both of these my technic was at fault. I have carried out this treatment in a number of cases, and an account of these will follow in a report to be read before the Section on Dermatology of the American Medical Association in June.

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5. Ravaut and Auberg: Compt. rend. Soc. de biol., 1901, liii, 637.
6. Ravaut: Compt. rend. Soc. de biol., 1907, lxii, 1159.
7. Ravaut: Ann. de méd., 1914, No. 1, p. 49.

# AN UNUSUAL CASE OF VACCINE ANAPHYLAXIS *

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Anaphylactic reactions following the injection of horse-serum in sensitized individuals are of common occurrence, and the various phenomena in animals sensitized to foreign proteins have been extensively studied. Great effort is now being made to unify these manifestations of anaphylaxis and immunity on a single basis, despite their many striking variations.

The introduction into the human circulation of foreign proteins, in the form of bacterial vaccines, is usually in such small amount that there is but slight local and usually no appreciable general reaction.

The following case is of special consequence because of its rarity in the literature, both of anaphylaxis and of vaccine therapy:

Mrs. S. J. P., aged 53, presented a small furuncle on the left forearm and an infected hair follicle in the right axilla. Three years previously she had suffered from boils and was effectively cured with four serial doses of staphylo-streptobacterin. Similar treatment was requested in this instance, and an injection of fresh stock vaccine, containing 100,000 000 streptococci, 400,000,000 staphylococci and 200,000,000 colon bacilli was given. There was only slight local reaction, and considerable improvement resulted in the existing furuncles. On the eighth day at 10 a. m. double the dose of the same vaccine was administered; at 4 p. m. there was a diffuse erythema about the lesion on the forearm, and an angry spreading erythema covering the right axilla, upper arm and breast. A nurse was at once placed in charge and records made at three-hour intervals. By 9 p. m. a scarlatinaform erythema had involved the entire trunk and parts of the extremities. There was no sore throat or constitutional disturbance, and the temperature and pulse were normal at all times. On the third day the entire body was involved, the advancing areas were macular, but rapidly became confluent and intensely red, the turgidity of the skin and pruritus was only momentarily relieved by lotions, unguents and dusting-powders, and the suffering was intense. The neck, trunk and parts of the extremities now presented the appearance of a fulminating erysipelas.

On the administration of free catharsis and alkalies, the eruption gradually faded, and on the tenth day there remained but slight erythema and induration about the original lesions. The temperature and pulse at no time varied from normal; there were no throat symptoms, joint pains or other systemic

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* Reported before the Chattanooga Academy of Medicine, Feb. 20, 1914.

disturbances. Leukocyte-counts showed but slight numerical or differential changes from normal; the urine contained no albumin, sugar or indican. The erythema, however, was so intense and indurated, that as it disappeared there was considerable fissuring of the skin in the flexures and a mild desquamation in many parts.

Such hypersusceptibility to bacterial proteins as occurred here, is, from the literature, exceedingly rare. With marked anaphylactic reaction, the absence of systemic upset is extraordinary.

The phenomenon itself is undoubted. It occurred as an intense scarlatinaform erythema, universal in extent and without constitutional disturbance. It was not an exanthematous disease, nor was the eruption related as at times, to parenteral protein digestion.

## EXOPHTHALMIC GOITER AS A CLINICAL MANIFESTATION OF HEREDITARY SYPHILIS

Oscar Clark, M.D., Rio de Janeiro, Brazil

I have had the opportunity, during the last five years, of observing an interesting case of exophthalmic goiter in a woman, aged 24, in whom there can be no doubt that it is a late clinical manifestation of hereditary syphilis. The patient began about five years ago to suffer from palpitation tachycardia, accompanied by violent attacks of nervousness, while her mother also called attention to a swelling of the neck. There was very little protrusion of the eyes.

Four years ago when I was first consulted (shortly before leaving on a journey to Europe, during which I was kept informed of the progress of the case), the clinical symptoms had become decisive and the syndrome grew steadily worse until the patient fell into a drowsy, almost comatose condition, with pulse over 200 beats, the sphincters quite paralyzed, with continuous vomiting lasting a fortnight. Dr. Sylvio Moniz, a well-known Brazilian physician, was summoned to the patient in this very bad condition and had the happy thought of trying the Wassermann reaction. To this he was led by the "Olympic forehead" and the *crâne natiforme*, being told also that the girl when 12 years old, had had several "epileptiform" fits. The Wassermann reaction was strongly positive, both with the patient's mother and with the patient herself.

With this diagnosis, Dr. Sylvio Moniz prescribed mercurial frictions and epinephrin (1:1,000 solution, 20 drops three times daily) to relieve the arterial hypertension and the vomiting; the latter rapidly ceased, while the patient had in two days recovered consciousness.

After eight days the pulse was just 150 and the goiter sensibly smaller, while the protrusion of the eyes was a little better. After thirty frictions the patient was much better both as regards the hyperthyroidic manifestation and the general health. The next month she was given two injections of salvarsan (0.3 and 0.6 gm.). By the third month she had quite recovered. Neither the goiter nor the protrusion of the eyes was to be seen. The pulse was 75 beats and the nervousness had disappeared.

The patient returned to North Brazil (she was at Rio de Janeiro), and ceased the mercurial and salvarsan treatment. Twelve months later, however, the Merseburger triad reappeared but a fresh recovery has been effected by the same treatment.

I think that this case is undoubtedly one of hereditary syphilis appearing late, as Dr. Sylvio Moniz made every laboratory test in order to exclude tuberculosis, malaria, etc. The father is dead, of what cause I am not aware; the positive Wassermann in the mother has been mentioned. The patient is from the best society and is virgin and there can be no suspicion of syphilis by contagion. She has never had any clinical sign of infection, but on the other hand, presents skeletal stigmata, and, as previously remarked, had epileptiform fits at the age of 12.

## A CASE OF DISSEMINATED CARCINOMA OF THE BREASTS AND AXILLAE IMPROVED BY RADIUM*

Sinclair Tousey, M.D., New York

The patient, a man, was referred to me by Dr. Beder. The right mammary gland and nipple had ulcerated away and there was another ulcer below that region. Both were adherent and covered with a red parchment-like epidermis and were surrounded by an indurated margin projecting ½ inch above the level of the skin. Nodular masses larger than a hickory-nut but smaller than a hen's egg were present in both axillae and were widely scattered over the front of the chest. On the right side of the chest the skin over many of these was red, and they were evidently in a way to break down into ulcers. On the left side the nodules were smaller, white, and extended from the nipple in a cord-like mass up into the axilla. The disease had been of several years' duration; no operation even for the removal of a microscopic specimen had been permitted. There was no history of syphilis, and two careful Wassermann examinations were negative. The clinical diagnosis had always been carcinoma, and if so it was evidently similar to the cases of epithelioma cicatrisans, which are sometimes active for as long as eight years before causing death. My patient had lost weight and strength, the skin was adherent to the chest wall, and the use of the right arm was interfered with.

Treatment was by contact applications of a mass of chemically pure radium sulphate containing 20 mg. of radium element having an activity of 20,000 microcuries, in a sealed glass tube 0.3 mm. in thickness, enclosed in aluminum 0.5 mm. thick and in thin, soft rubber. Treatments were three times a week for a month and after that once a week. At each treatment several individual nodules or parts of the nodular borders of the ulcers received an application equal to a total of fifteen minutes in each place. During the first month every growth on the right side had been treated in this way and also the floor of the ulcers, but the left side had not been treated. At the end of this time all the nodular masses on the right side were perfectly flat, and the cicatrized ulcers were no longer adherent but could be raised and bent double. The arm could be raised to the greatest extent. The patient felt stronger and had gained 5 pounds in weight. The left side, untreated, showed marked improvement, strengthening my belief that the application of the Roentgen ray and radium rays to cancer develops some antibody which is carried through the system and in proper dosage produces benefit to cancer foci beyond the effective reach of the direct rays themselves.

Treatment was then begun on the left side, and the subsequent course of the case has been one of steady progress.

850 Seventh Avenue.

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**The Favorite Formula or Pet Prescription.**—Every physician, whether optimistic or pessimistic in his general attitude toward the materia medica, usually has a favorite formula—a certain combination of drugs which he uses for many and varied selected conditions. It is his favorite formula; here is mine:

| | | gm. or c.c. | |
|---|---|---|---|
| ℞ | Codein sulphate .............. | 1 | gr. ii |
| | Acetphenetidin ............... | 75 | gr. xii |
| | Aspirin ...................... | 2 | gr. xxxii |
| | Chinchonidin salicylate ........ | 5 | gr. viii |

Make eight capsules. One every hour or two.

With this formula, under appropriate conditions, the cure of patients becomes strictly a case of *cito, tuto et jucunde*, as we are admonished it should be. It will symptomatically cure grip, and if given on the first day will in many cases produce such an improvement by the second as to prevent its complications and incidentally—*malum in se*—do away with the doctor. I have used the favorite formula with satisfaction in most inflammations. There are other indications naturally suggested by its ingredients to which it seems excellently adapted and which it is unnecessary to enumerate.—Wilfred M. Barton, M.D., Washington, D. C.

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* Case shown at the Surgical Section, New York Academy of Medicine, March 6, 1914.

# New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

**SEROBACTERINS** (See THE JOURNAL, Feb. 7, 1914, p. 457). The Council has at present no means of determining the identity and purity of serobacterins; they must be used on the guarantee of the manufacturer alone and they must be used, therefore, with due caution.

H. K. Mulford Co., Philadelphia.

*Scarlatina Strepto-Serobacterin Mulford (Immunizing)*.—(Sensitized Scarlatina Streptococcic Vaccine, Immunizing).—Each package contains three syringes of Scarlatina Strepto-Serobacterin as follows: Syringe 1, 1,000 million killed sensitized streptococci; Syringe 2, 2,000 million killed sensitized streptococci; Syringe 3, 2,000 million killed sensitized streptococci.

**PHENOLPHTHALEIN-AGAR.** — Phenolphthalein-agar is agar-agar impregnated with phenolphthalein, 100 Gm. containing 3 Gm. of phenolphthalein.

*Actions and Uses.*—Phenolphthalein-agar is claimed to have the properties of agar-agar (which see) augmented by the action of phenolphthalein (which see).

*Dosage.*—1 Gm. (15 grains) twice daily, after breakfast and supper, increased or diminished according to requirements.

Manufactured by the Chemische Fabrik Helfenberg, A. G., Helfenberg, Saxony, Germany (Reinschild Chemical Co., New York). U. S. patent No. 943,163 (Dec. 14, 1909; expires 1926). No U. S. trademark.

Phenolphthalein-agar is prepared by impregnating 1,000 Gm. of agar-agar with a solution obtained by dissolving 30 Gm. of phenolphthalein in a mixture of 2,000 Cc. of water and 700 Cc. of alcohol and drying the impregnated agar-agar slowly.

# Therapeutics

## THE TUBERCULOSIS PROBLEM

*(Continued from page 1093)*

### GENERAL MEDICATION IN THE TREATMENT OF TUBERCULOSIS

In the first place, drugs, as such, cannot cure, and are not antidotes to this disease. On the other hand, much can be done, with proper medication, to aid the physiologic processes.

*Calcium.*—It has long been thought that patients suffering from tuberculosis have previously become demineralized. This means especially that they have lost their calcium, and perhaps phosphorus, equilibrium. It is also true that tuberculous lesions heal by more or less calcification. Also, patients are more likely to have hemorrhages, if their calcium blood-content is diminished. Certain it is that patients, especially children, often improve with increased amounts of calcium in their food or as a medicament. One of the great values of a proper amount of milk for tuberculous patients is probably the calcium and phosphate content. On the other hand, many patients improve by the administration of a calcium salt, and none is better than calcium glycerophosphate, in 0.30-gm. (5-grain) doses, three times a day, after meals.

Galliot[1] advises the following combination for children who are suffering from tuberculosis: calcium carbonate and calcium phosphate, each from 20 to 30 cg. (from 3 to 5 grains); magnesium chlorid from 10 to 20 cg. (from 1½ to 3 grains); magnesium oxid from 5 to 10 cg. (from about ¾ to 1½ grains). This he administers two or three times a day. It has often been found that tuberculous patients improve under the administration of thymus gland. This is rich in nucleoproteins, and therefore offers phosphorus in assimilable form, and also it seems to promote the calcium metabolism. This gland is very active during childhood, when the greatest amount of bone growth occurs.

*Creosote.*—Creosote has been long recommended and much used, and its action in tuberculosis has been lauded by able medical men.

A preparation of tar was perhaps first used in 1817 by a Dr. Crichton, physician to the Empress of Russia; and in this country it was perhaps first used in 1834 by a Dr. Morton of Philadelphia. Creosote was separated from wood-tar by Reichenbach of Blankso in 1832, and received its name because it preserved meat. Two years later Runge extracted carbolic acid from coal-tar, which Gerhardt called phenol. In 1877 Bouchard and Gimbert began to use, in tuberculosis, a creosote prepared from beechwood.

There is a great difference of opinion among clinicians as to the value of creosote in pulmonary tuberculosis. Many physicians never use it in this disease, and others push it to such an extent that the patient is practically saturated with it, and his room and almost the whole house reeks with the odor of creosote. It seems to be true that many patients have improved appetite under its stimulant or irritant action in the stomach. It may also, for a time, improve digestion, and the patient often adds weight. During this period there is frequently a lessening of the bronchitis, and therefore a decreased expectoration, and with this decrease of the secondary (streptococcic) infection, there is likely to be less fever and therefore less sweating. It is so rare, however, for a patient to take creosote and not adopt the rest cure and other measures that go toward improving his condition, that it is not fair to attribute such improvement to the creosote. Creosote is also more or less of an intestinal antiseptic, and hence bacteria-laden sputum that may be inadvertently swallowed may be rendered harmless in the upper part of the intestine. Be that as it may, it is a fact that good bowel activity, an improvement in the intestinal digestion, and the prevention of fermentation or putrefaction in the intestine, by many so-called bowel antiseptics, will all cause an improvement in the tuberculous patient.

Unfortunately, as frequent aftermaths of the good action of creosote the pancreas becomes overstimulated by the drug and does not furnish its secretion properly; there is intestinal indigestion; the liver is disturbed; there are stomach indigestion and loss of appetite, and the patient will lose weight faster than he gained it under the creosote treatment. Too much creosote will also irritate the kidneys, and may cause albuminuria. In other words, it generally does not seem wise to recommend creosote, as such, internally in pulmonary tuberculosis. As an ingredient of an inhalant mixture it may be of value, as a positive antiseptic to the upper air-passages and the trachea and large bronchial tubes. If there is fetid, purulent expectoration such inhalations may be of advantage.

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[1] Galliot: Arch. de méd. d. enf., 1913, xvi, 4, p. 280.

Guaiacol frequently in the form of a benzoate of guaiacol has been used for tuberculosis, but guaiacol has no advantage over creosote in the treatment of tuberculosis. The exponents of the creosote treatment believe that the drug should be begun in small doses and gradually increased to the point of the patient's tolerance. Tolerance means that the appetite is not interfered with, that there is no nausea or vomiting, and that the urine does not become dark and show albumin.

The symptoms of creosote poisoning are similar to phenol poisoning. From its overaction the patient not only has gastritis and intestinal disturbances, but also dark urine, perhaps nephritis, and dizziness and sweating.

*Ichthyol.*—The internal administration of ichthyol in tuberculosis seems to have its only advantage in acting as a bowel antiseptic. In this manner it may do some good, but as patients generally eructate it, it is exceedingly unpleasant treatment. Other methods of preventing intestinal disturbances, such as ordinary laxatives, a cathartic perhaps once a week, the administration of soured milk, yeast or lactic acid bacilli, if any such treatments are indicated, or salol if needed, are all better than the ichthyol.

*Cod-Liver Oil.*—This oil is a food, and as such has its advantages. A small dose of cod-liver oil is as easily taken as a large dose of some emulsion which contains but little of the oil. In other words, if one desires to give cod-liver oil, it may be given; but, as previously stated, other oils and fats are of as much advantage, and it certainly is not wise to load the system with large amounts of bile-salts. There is no difference in the effect of Norwegian cod-liver oil and the oil prepared on our own shores.

*The Hypophosphites.*—The hypophosphite treatment of pulmonary tuberculosis has already been discussed.[2] There is no chemical, physiologic or specific excuse for giving the hypophosphites; the success of treatment of lung conditions with hypophosphites is a fallacy. It is not intended to state that some phosphorus and some calcium-bearing preparations and foods containing these elements may not be of value, but one is not justified in expecting results from any hypophosphite combination of these or other elements.

*Arsenic.*—Arsenic has been advised for years in many lung conditions. It has been stated that the arsenic eaters of France and Switzerland have been more or less immune from tuberculosis. It has been stated that patients breathe more freely and better under the influence of arsenic. However this may be, in the treatment of pulmonary tuberculosis the value of arsenic is very slight. It seems to stimulate the production of blood-corpuscles, both red and white, and in small doses it may stimulate the appetite. In any large doses arsenic is harmful, tending to cause secondary destruction of red blood-corpuscles, to irritate the kidneys, to upset the digestion, and when pushed, may cause multiple neuritis. In other words, arsenic is a poison, and should not be administered to a patient unless there is a tangible, positive indication. Arsenic has come more or less into prominence as a germicide since the wonderful activity shown by salvarsan in the treatment of syphilis. It has long been known that arsenic may sometimes kill the malarial germ; it seems also to have some activity in certain tropical germ diseases. But arsenic is such a stimulant to glandular tissue, especially to the lymph-nodes, that it would seem unwise, theoretically, to give a sufficient amount of it to cause excessive activity of these glands, with the probable pouring out of many tubercle bacilli into the lymph- and blood-streams. In good-sized doses arsenic could probably do harm just as large doses of tuberculin will do harm.

*Iodin.*—For many years this element in some form has been given frequently for various kinds of tuberculosis, especially glandular tuberculosis. It was recently lauded for pulmonary tuberculosis by Boudreau.[3] He gives the French tincture (1 part of iodin to 12 parts of 90 per cent. alcohol), and commencing with small doses runs it up to 100 drops a day, administered in various beverages. After ten years of trial, he finds such treatment of value not only in pulmonary tuberculosis, but also in renal tuberculosis.

*Although there are no other reports concerning this* treatment, harm has been done in pulmonary tuberculosis by the administration of an iodid. It seems to be a stimulant to the tubercles, not unlike tuberculin, and may cause a lighting up of a quiescent tuberculous process or a serious exacerbation of a slow-going infection. The stimulant action on glands is well known, and tuberculous glands may be overstimulated to the harm of the patient. In other words, iodids should not be used carelessly in pulmonary and glandular tuberculosis. This does not militate against the possibility of small, very slowly increasing doses of iodin doing the same good that graded doses of tuberculin do, but the treatment should be most carefully watched.

Thyroid gland substance has been given in tuberculosis, but it is rarely indicated, though the thyroid is probably often affected in tuberculosis.

Though the syrup of the iodid of iron has long been given in glandular enlargements in children, experienced observers have found no greater benefit from it than from some other form of iron.

*(To be continued)*

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[2] The Fallacy of Hypophosphite Treatment, Therapeutics, The Journal A. M. A., March 8, 1913, p. 747.

[3] Boudreau: Jour. de méd. de Bordeaux, Jan. 4, 1914.

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**First Aid in Railway Accidents.**—German railways provide a first-aid train in case of railway accidents. It consists of a locomotive and two cars, the one a work car with workmen and all necessary apparatus for clearing the tracks, releasing wounded people who are caught in the wreckage, repairing the track and setting traffic in motion again. The other is a hospital car, provided with all necessary instruments for emergency operations, bandages, dressings, medicines, operating table, stretchers and eight beds in which patients can be transported to the nearest hospital. The personnel of these cars, workmen, doctors, nurses, etc., are all within call so that they can be reached very quickly after news of an accident is received, and they have drills in practice so that when an actual call comes they are expert in preparing for action quickly, sterilizing, getting operating and anesthesia tables, sutures, instruments, etc., ready. Every preparation is made on the way to the scene of the accident, so that they are ready to begin work when they arrive. These trains are stationed at frequent enough intervals along the road, so that the most isolated spot can be reached within two hours after an accident has occurred. Dr. Gilbert describes their work in *Archiv für Rettungswesen*, 1913, i, 140, and gives a further account not only of the medical work but of the work of the train crew in notifying on-coming trains, sending word to the railway officials and families of the dead and wounded, clearing the tracks for traffic and all the multitudinous details that have to be attended to in such catastrophes.

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SATURDAY, APRIL 11, 1914

## DISEASES DUE TO DIETARY DEFICIENCIES

The more intimate knowledge which has been gained in recent years regarding the underlying causes of certain hitherto little-understood diseases promises to uproot and displace, or at any rate to supplement, some of the older notions that have been current. The modern development of pathology has left such an indelible impression on the study of medicine that its special point of view has long remained the dominant one, and in most cases properly so. Our diagnostic powers have been widened enormously, throughout the nineteenth century, by what has been termed the clinicopathologic investigation of disease. Osler remarks that the physician of to-day who wishes to obtain a sound knowledge of the natural history of disease must adopt Morgagni's method of "anatomic thinking." The long-prevalent influence of pathologic anatomy made it seem almost inevitable that some defect of bodily structure be found with which to associate the incidence of disease either directly or through predisposition. When modern bacteriology revolutionized the conception of the etiology of infectious diseases by giving concrete proof of the existence of the long-suspected *contagium vivum,* modern clinical medicine became still further modified. This fruitful knowledge has resulted in emphasizing the search for some agency of a positive kind in the case of every malady. As Hopkins says, we perforce recognize inherent deficiencies of structure and material in the body; but the essential and immediate cause of any disease we rather seek in the intrusion of some positive factor, some *res noxia,* be it parasite or poison. So completely is this course justified in general, he adds, that there is doubtless an excuse for the present tendency to seek for such an intruder in cases in which there would seem to be little reason to expect its presence, as in certain diseases of nutrition.

The study of the functional perversions of some of the so-called glands of internal secretion has pointed to the pathologic significance of their failure to supply some specific substance or other to the organism. Expressions like "dyspituitarism" and "hypothyroidism" testify to the growing recognition of the occasional lack of products needed to maintain the normal metabolism of the organism. They bring this deficiency into prominence as a factor in the causation of disease. The lacking product in such cases is, however, something which appears to be manufactured in the body itself; and to call attention to its absence or deficiency is merely to direct the search for the etiologic factor one step farther back.

The remarkable newer revelations respecting the causative agencies in the manifestations of beriberi have served more than anything else to direct attention to deficiencies in the diet as an underlying etiologic feature in certain types of disease. By deficiency we do not here mean gross lack of energy-yielding substances — of calories represented by protein, fat and carbohydrate — for starvation, either complete or partial, need not be portrayed as something physiologically unique. It is rather the lack of one or more substances, perhaps of organic nature, which are present in most dietaries in small amounts easily overlooked by the chemist. Specifically in the case of beriberi induced by living on a narrow regimen of milled rice it is some component of the pericarp or millings of the cereal which is removed in the process of manufacture, the replacement of which in the diet averts or cures the pathologic manifestations.[1]

In an interesting discussion of diseases due to deficiencies in diet, Dr. F. G. Hopkins[2] has summed up the situation which has resulted in overcoming the doubt that any important deficiency of the sort mentioned could ever occur in practical dietaries, as follows: The case of beriberi is indeed a very remarkable one. The wide consumption by whole races of a one-sided dietary, the localization of a specific substance in a grain, an artificial treatment of that grain exactly adjusted to remove the substance, and the occurrence of prominent symptoms as the result of its removal — all these coincidences were necessary to yield so striking a proof that a disease may arise from a dietetic deficiency. Without them it is unlikely that a serious discussion of the subject would have arisen.

The substitution of a deficiency factor in place of a toxic substance or an invading organism in the conception of the nature of a group of diseases has promptly afforded a new direction for interest in situations that have long puzzled physicians. The investigation of scorbutus as a deficiency disease has been renewed with exceptional vigor. This is particularly true of the form of infantile scurvy known as Barlow's disease and the somewhat related conditions of atrophic change described as *Mehlnährschaden* by the Germans. The manifestations of pellagra are being considered from the same point of view by those who are willing to take a tolerant attitude toward new hypotheses regarding this much-discussed disease. Even rachitis, osteomalacia and spasmophilia have been drawn into consideration.

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[1] The Relation of Rice to Certain Diseases, editorial, The Journal A. M. A., Feb. 24, 1912, p. 556; Polished Rice, Beriberi and the Nervous System, ibid., July 6, 1912, p. 42; Recent Investigations on Rice Bran in Relation to Disease, ibid., Sept. 14, 1912, p. 883.

[2] Hopkins, F. G.: Discussion on Diseases Due to Deficiencies in Diet, Proc. Roy. Soc., Section on Med. Therap. and Pharmacol., 1913, vii, 1.

Enthusiasm for the new has a familiar tendency to swing the pendulum too far in the direction of hastily accepting untested theories. With this warning we would preface a statement regarding the various symptoms of disease that have already been referred to diet-deficiency factors. They have been summarized by Funk[3] as: (1) the syndrome of nerve degeneration with paralysis and contractures; (2) the cardiac syndrome involving dilatation of the right heart, dyspnea, cyanosis and oliguria; (3) anasarca, hydropericardium, hydrothorax, ascites — these three groups pertain to beriberi, for example; (4) the familiar picture of scorbutus with its disturbances in the mouth cavity, multiple hemorrhages in the skin and under the periosteum, as well as typical bone lesions; (5) the pellagra syndrome, with its stomatitis, gastro-intestinal lesions, skin erythema and multiple symptoms related to the nervous system. One fact stands out boldly amid the confusion of theory, namely, that the diseases of deficiency are no longer to be classed in the domain of tropical medicine. They appear with the occurrence of the limited or defective dietary wherever the latter may be found.

It is not an insuperable misfortune that we are at present still very meagerly instructed regarding the chemical nature of these essential components of the dietary for which Funk has promptly coined the term "vitamins." Enough facts are already at hand to furnish the [illegible]eutic guidance. A diet liberal in the sense of variety and including, in the case of adults at least, plant food-products which are now known to contain countless substances other than proteins, fats and carbohydrates, is, to say the least, likely to furnish the desired essentials. For the present we must further bear in mind the experience with experimental scorbutus.[4] The main symptoms may develop in advance of any loss of weight, while, when fresh vegetables are fed, the symptoms may remain absent even if the diet is insufficient in quantity, and weight is rapidly lost. The condition is clearly no result of simple underfeeding. But above all it is important to realize that in different foodstuffs the as yet unknown antiscorbutic substances exhibit varying degrees of stability. Whereas the symptoms are gradually removed through the use of fresh vegetables or vegetable juices, such materials are likewise known to lose their curative powers if heated, dried or kept long. Fresh milk is both antiscorbutic and antineuritic. The question of heating it needs to be considered from this aspect as well as from the present dominant point of view of necessary pasteurization.

The sum and substance of our still limited knowledge in this field is that the "vitamins," if we may employ the convenient term without prejudice as to its import, are widely distributed in nature and are also susceptible to destructive alteration in the modern processes of food manufacture and practical dietetics. The excessive milling of the grains, the undue heating of certain foods, *the extraction of as yet unknown components from still* other food products in present culinary practice, inappropriate methods of desiccation and preservation — all may contribute in as yet unsuspected ways to damage natural products in respect to their "vitamin" content. The sufferers thereby are those who by force of circumstances or custom are compelled to live on a limited ration. Greater safety lies in variety of diet and dictates the occasional return to the unaltered products of Nature's laboratories until the complete story of the essentials of diet is developed. On the other hand, we must not let the coining of words or the formulation of tentative hypotheses make us oblivious of the persistent shortcomings of our knowledge in this new and interesting field.

## THE INDIANA MOTHERS' BABY BOOK

State and municipal health officers are realizing more and more that one of their most important duties is to teach the public, and that instruction, if properly given, is much more effective than coercion without instruction. The majority of persons are not only willing but also anxious to do what is right if they know what they ought to do, and especially if they are shown why they ought to do it.

The first development of public health administration was in the direction of compulsory laws forbidding certain actions and requiring others. These, too often, while enacted from the best of motives, and based on sound scientific knowledge, either were in advance of public opinion or were passed without any effort to develop public sentiment to support them. While often effective in the hands of an energetic and capable health officer, they have been in many cases dead letters and in others enforceable only at the cost of an enormous amount of effort, which might better have been utilized in other directions. The leading state health organizations at present are endeavoring to increase the education and enlightenment of the public, and to create public sentiment for the enforcement of such health regulations as may be necessary.

One of the strongest exponents of this doctrine is the Indiana State Board of Health. Through its bulletin and through the newspapers of the state, most of which are hearty supporters of the board, an effective educational campaign has been carried on. Realizing that nothing so appeals to the average man and woman as do efforts to save the lives of babies and prevent needless illness among infants, the secretary of the board,

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[3] Funk, C.: Diät und diätetische Behandlung vom Standpunkt der Vitaminlehre, München. med. Wchnschr., Nov. 25, 1913, p. 2614.

[4] Experimental Scurvy, editorial, THE JOURNAL A. M. A., Dec. 14, 1912, p. 2155.

Dr. J. N. Hurty, asked the state legislature last year for an appropriation of $5,000 for the publication and distribution of "The Indiana Mothers' Baby Book." True to the instincts of the average legislator, the Indiana lawmakers cut this amount down one-half, and probably would have refused it altogether had not Dr. Hurty called attention to the fact that the same legislature had already appropriated a larger amount of money to stamp out hog cholera. Owing to the limited amount appropriated, the state board can send copies of this book only to the Indiana mother who has just borne her first child. Beginning last month, when the birth reports of the state for February were received by the secretary of the state board of health, the distribution of the book in this way was begun.

The book itself, which is attractively printed and bound, is intended to supplement and aid physicians by giving to mothers simple instructions concerning pregnancy, childbirth and the care of babies, in the hope that by this method a considerable amount of infantile disease and mortality may be prevented. The first part consists of chapters on parentage, pregnancy, preparation for labor and management of labor, and contains instructions for emergencies as well as advice for prospective mothers concerning their physical condition. The second part is devoted entirely to the care of the child, containing chapters on the care and feeding of the baby, advice to nursing mothers, bottle-feeding, clothing the baby, the second summer and teething. The book is thoroughly practical, written in simple language and well illustrated. The effect of this educational campaign will surely be apparent in a few years in the reduced infant death-rate in Indiana.

An additional touch is furnished by the two letters that accompany the book when it is sent to mothers. One is signed by the governor, congratulating the mother on the birth of her child; the other is from the state board of health offering its services in helping to keep the child well. Naturally, these letters greatly increase the mental impression on the parents, and lead to greater attention on their part to the instructions and admonitions in the little book.

## THE HYGIENE OF ATHLETIC SPORTS—ROWING

In considering the discredit into which certain aspects of physical exercise are liable to be thrown by some of the abuses of modern athletics, we have pointed out the desirability and timeliness of ascertaining with some scientific precision and freedom from "professional" bias precisely what are the physiologic effects of the current practices.[1] The extent of the available information in respect to the specific influence of bodily exercise on the human mechanism is surprisingly limited. The time has arrived when criteria of competitive overdoing in contrast with wholesome athletic training should be proposed and discussed in a frank and fearless way for the future benefit of American youth.

Training has been defined as the systematic preparation of the body for the exhibition of the utmost efficiency of its muscular system by means of regular physical exercise and a carefully regulated mode of life. It aims at permitting the individual to undergo vigorous bodily exertion with relative ease in comparison with the untrained individual and, above all, without jeopardy to health. This involves numerous elements of change in the organism, the precise nature of which is all too little known and has received scant attention from worthy investigators in the past. A recent study carried out at Wurzburg on the members of one of the academic boat-clubs, under the supervision of the hygienist K. B. Lehmann, furnishes some facts of immediate interest in relation to the effect of the training of candidates for competitive rowing crews.[2] The facts were gathered by competent observers and bear on a number of physiologic functions. The period of training comprised in the case under discussion covered about two and a half months during the collegiate year. Almost every candidate manifested a decline in body-weight, the loss averaging about 4.5 kg. (9 pounds), a figure somewhat less than is currently expected to follow rigorous training like that called for by university crew practices. There is an early drop in weight, not improbably due to a loss of superfluous fat in the beginner. The organism then adjusts itself to the need of a more liberal energy intake resulting in more stationary weight. During the final periods in which the concluding races and strenuous competitive trials occur there is, as a rule, a further decline in weight. That the weight-curve is not without direct prognostic import is suggested by the Wurzburg observer. He has noted that if it shows a sudden and steep decline the condition known among athletes as overtraining is to be feared. This may follow overexertion. It is attended with uncertain efficiency and nervous symptoms that can be averted only by a carefully instituted rest, diversion, and conservation of the physical resources of the individual.

A surprising feature in Lehrbecher's measurements is the failure to demonstrate a considerable increase in the size of the muscles of various regions in the course of a two months' training. Familiar observation and the physiologic teaching of the present day lead one to expect pronounced development in the arm, for example, when this is subjected to vigorous exercise. Several factors may have entered into the absence of evidence of increased proportions in the musculature of these German oarsmen. Hypertrophy of the muscles may have been compensated for in the total volume of the limbs and other parts measured by the disappearance of surplus fat. Furthermore, it should be borne in mind that rowing does not confine its demands to limited groups of muscles, which is the case in many other sports such as boxing or fencing, but calls into play almost every larger area of skeletal musculature. In skilful rowing the arms are drawn into participation far less than the inexpert layman is wont to believe; on the other hand, the abdominal muscles and the legs are called on to assume a not inconsiderable share of the special effort. The contours of the rectus abdominis as well as of the muscles of the back gradually come into striking relief. At the outset of training the volumes of the extremities may show considerable increase after each individual series of efforts; later these immediate changes due to circulatory responses become less marked or even negligible as the muscles are accustomed to the work which they perform. The physiology of this adaptation, often attended by a disappearance of muscular pains which accompany the beginner's efforts, awaits an explanation.

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[1] Athletic Sports in Relation to Health, editorial, The Journal A. M. A., March 21, 1914, p. 936; Athletic Sports versus Competitive Athletics, ibid., April 4, 1914, p. 1094.

[2] Lehrbecher, A.: Beobachtungen beim Rudertraining, Arch. f. Hyg., 1913, lxxxi, 1.

All students of the physiology of exercise are agreed that the acceleration of the pulse attending a definite exertion grows less and less with training. The difference between the well-trained and the beginner in this respect was strikingly brought out in the Wurzburg experiments. The demands made on the circulatory mechanism are indicated by the fact that in covering 2 kilometers in a four-oared racing-shell the pulse-rate was raised to from 150 to 180 beats per minute in every individual. It is precisely in this feature of the extreme task of the circulatory apparatus that the greatest dangers lie and that the least definite information as to the mechanism of compensation in relation to training is at present forthcoming. The respiratory distress so common with beginners after extreme effort is likewise greatly lessened as the result of training. The thorax seems to become more mobile to meet the needs of pulmonary ventilation, and the respiratory responses grow more efficient. The temporary rise in body temperature invariably attending muscular activity amounted, on the average, to 0.42 C. (0.75 F.) during a row over the usual course. This is somewhat less than one finds in other comparable athletic sports, doubtless owing to the fact that the mode of clothing in crew practice permits a more ready compensatory loss of heat from the body. Albuminuria and attendant pathologic kidney phenomena, so frequently mentioned as characteristic of undue physical exertion, were not observed in the present experiences.

The subtle influence on the nervous system of training for a decisive competitive event is recognized by those immediately concerned as an element liable to determine success or failure, but is rarely considered from the broader point of view of its effect on the welfare of the person concerned. Most candidates show more or less "nervousness" and increased irritability toward the end of a period of training, and this mental condition is well known to the experts. There may be periods of tendency to insomnia, and diarrheas of nervous origin have been observed. It has been counted as favorable in the case of college athletes that their scholastic duties act to divert attention in some measure from the "nerve-straining" features of athletic training. The same factor of distraction has been held to account for the often unexpected success of crews composed of business men who devote only their leisure moments to the somewhat monotonous rigor of training and practice.

The conclusions of a physiologic observer who has followed a season of training with unbiased expert eyes are worthy of close consideration. The possible dangers of competitive rowing are not concealed by him. Even with careful supervision, overexertion of the heart, nervous exhaustion and other untoward symptoms may arise. Such features can be averted by intelligent guidance; in other words, by training under the eye of a competent medical adviser rather than a muscular giant or an athletic trickster. Speaking from a personal experience, Lehrbecher frankly says that the choicest reward of the great effort of six weeks' preparation is not the absolute gain in muscular strength or bodily mastery, but rather a unique feeling of control over an organism that is equal to the greatest exertions. The feeling of having participated in a regatta is not greatly unlike the sense of satisfaction which attends the successful completion of an examination. The one demonstrates the mastery of the body, the other that of the mind. We are warned, however, of an additional duty rarely fulfilled by the present system of athletic competitions. It is the necessity of providing for some acceptable continuance of activity so that the derived gain of a season's training will not change to loss and the well-trained person revert to the other extreme of unhygienic living.

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## THE UNITED STATES PUBLIC HEALTH SERVICE

The annual report of the Surgeon-General of the United States Public Health Service for the fiscal year 1913 really is only a mere outline of the work of the department for the year, the full accounts of its wide and varied activities being contained in numerous bulletins and other publications issued from time to time. In the one hundred and fifteen years of its existence the service has rapidly grown, especially during recent years, both in the extent of scientific work and in the practical application of the knowledge so gained to the welfare of the people. It is doubtful whether the average citizen has any real conception of the extent or the great value of the achievements of the service.

It is worthy of note that not one case of cholera occurred in the whole of the Philippine Islands during the year, and only a few cases of plague, a disease which was never allowed to arise to the dignity of a menace. Yet these diseases have been from ancient times two of the scourges of the earth. Small-pox, which formerly killed 40,000 people annually in the islands, occurred in such a small number of cases (and those among persons inaccessible to vaccination) that it is an item of only minor importance in the report for 1913. Yellow fever since its banishment following the Spanish War, through constant watchfulness, has never again gained a foothold anywhere in our possessions, and is only mentioned in connection with the strict quarantine maintained against Central and South American countries where the disease is always present.

Concerning the United States proper, highly interesting and significant of the practical activities of the service are the reports of the field investigations on pellagra, trachoma, malaria, Rocky Mountain spotted fever, typhoid fever, tuberculosis, parasitic diseases, pollution of navigable waters, sanitary administration, school sanitation and the hygiene of occupations. Much of this work was done at the request of and in cooperation with state health boards. The work also included laboratory investigations of many of the diseases primarily named as well as others, studies in connection with the supervision of viruses and vaccines, serums and toxins, the preparation and distribution of antirabic virus, the enforcement of the white-phosphorus-match law, etc. As a result of the investigations since 1906 by the service and by others, sufficient knowledge of typhoid fever is said to exist which, if utilized, would abolish the disease. It continues to prevail, however, and the department in future will endeavor, by studying local outbreaks, to stimulate interest in the adoption of measures for prevention, not the least of which is antityphoid inoculation. A great portion of the activities and of the forces of the Public Health Service are connected with the quarantine and immigration services, and the account of that work given in the report is of decided interest and importance. We have commented a number of times during the past year on the work of the immigration service, especially in connection with the admission or exclusion of the feeble-minded and the insane. This report as a whole shows that an amazing amount of work of the most practical value has been accomplished by this service. For a body inadequately manned, and provided with insufficient appropriations to carry out a tithe of its possibilities of benefit, the United States Public Health Service has demonstrated anew its whole-hearted interest in humanity and its great power for good.

## THE SERUM TREATMENT OF TETANUS

The great value of antitetanus serum as a preventive is unquestioned. Indeed, Kocher says that failure to inject antitetanus serum as early as possible in all cases of wounds contaminated with street dirt would be culpable neglect. As a specific cure, however, this serum has fallen far short of the earliest expectations; it even has been asserted that so far the statistics and the evidence obtained from watching patients treated with serum do not indicate that it has any real curative value. It has been shown experimentally, however, that antitetanus serum may save animals already suffering from the symptoms of an otherwise fatal intoxication, but in order to accomplish this result the serum must be given in several hundred times the quantity required merely to protect, and it must be injected within a short time, from twenty-four to thirty-six hours, after the onset of the tetanus. Furthermore, it cannot be denied that the weight of statistics favors the serum. It is generally stated and accepted that the death-rate of tetanus before serum treatment was introduced was from 80 to 85 per cent. We now have several series of cases under serum treatment which all give a somewhat lower death-rate — from 60 to 65 per cent. — whereas in cases without serum treatment the higher rate of earlier days appears to prevail.

Permin,[1] in a recent and thorough review, reaches the general conclusion that antitetanus serum has reduced the mortality of tetanus approximately 20 per cent. He gives figures from Denmark, which are especially valuable because gathered from a small area, and hence representing fairly uniform conditions: 199 cases not treated with serum gave a death-rate of about 80 per cent., while 189 cases in which the serum was used gave a rate of 58 per cent. It is significant that the Danish figures correspond closely to American statistics and those of other countries. In view of this evidence in favor of the serum in tetanus it is self-evident that the physician is under obligation to give every patient with tetanus the opportunity to obtain any benefit there may be in the serum.

At this point the question may be raised: What is the reason that the antitetanus serum is not more effective than it has been? An attempt to answer this question requires a brief word concerning the genesis of tetanus. The symptoms of tetanus are caused by a toxin which is said to be the most virulent of all poisons. This toxin is produced by the bacilli lodged in the wound and it reaches the brain and cord by way both of the circulation and of the muscular nerves, along which it travels with considerable rapidity; it has a special affinity for the ganglion cells of the brain and cord, and its action on them causes the stiffness and spasms characteristic of the disease. It has been determined by experiment that tetanus antitoxin, no matter how introduced into the body, probably has practically no effect on the toxin which already has entered the ganglion cells; antitoxin does neutralize, however, the toxin which is free in the blood and lymph, and it does this most quickly and effectively when the antitoxic serum is introduced intravenously or intramuscularly. According to the experiments of Permin, it seems that the antitoxin so introduced does not reach, and hence does not neutralize that toxin which is still in the nerves. Permin was able to produce tetanus experimentally by injecting toxin directly into suitable nerves, even though the animal was thoroughly immunized beforehand by the injection of antitoxic serum. That is, a muscular nerve, even though bathed in lymph containing tetanus antitoxin, will nevertheless convey fatal quantities of tetanus toxin to the nerve-centers. The only way in which the antitoxic serum can neutralize this intravenous toxin is through intraspinal injection. By this method the antitoxin reaches not only the toxin still in the nerves, but also that which has passed into the blood and lymph. From this we learn, then, two very important facts, namely, first, that the serum does not affect the morbid process initiated by the entrance of the toxin into nerve-cells, as its preventive action lies in neutralizing the toxin which is still free; and, second, that only by intraspinal injection can it reach the toxin traveling in the nerves. Hence, the reason for the ineffectiveness of the serum treatment of tetanus must be failure to begin the treatment, which is essentially preventive, early enough; the use of too small a number of antitoxic units, and the selection of a place of injection not best suited to secure the maximum neutralizing action.

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[1] Permin: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1913, xxvii, 1; abstr., THE JOURNAL A. M. A., Jan. 10, 1914, p. 170.

The recognition of the natural limitations of the serum treatment of tetanus will serve to emphasize the importance of early and liberal use of antitoxic serum largely by intraspinal introduction in order to neutralize the toxin that still is free and on its way to the nerve-cells, the necessity of thorough cleansing of the wound to remove all source of continued intoxication, and of conserving the strength of the patient in the hope that the morbid process caused by the toxin already in the nerve-cells may be overcome.

## SALVARSAN THERAPY

By a careful review of the fatalities from salvarsan not only under his immediate observation, but also of the cases in the literature, Wechselmann,[1] in a pamphlet issued recently, attempts to prove that the cases of encephalitis hemorrhagica following salvarsan treatment were due to uremia. This was the result of the irritation of kidneys which in most cases had been rendered insufficient by mercury. The kidney lesions, while not so severe as to give clinical or laboratory evidences of trouble, yet reacted to salvarsan by a fatal suppression of urine. He supports this argument by the findings in a series of animal experiments showing that mercury, like chromium, damages the tubular epithelium of the kidney, while arsenic, like cantharidin, acts on the glomeruli. He explains that kidneys long irritated by mercury are so injured that the comparatively slight irritation of salvarsan can cause suppression.

On the basis of this theory, which he grants is not proved, he argues in favor of a pure salvarsan therapy in place of the generally accepted combined mercury and salvarsan therapy. His opinions can scarcely succeed in making many converts to pure salvarsan therapy; but they are valuable, especially as coming from a salvarsan enthusiast, because of the emphatic warning that no pains should be spared in the detection of contra-indications, and in the accurate determination of the proper dose if no contra-indications exist.

Whether or not the insufficiency of the kidneys is the key to the situation, the suggestion that careful examination of their efficiency be made in every case before giving salvarsan is a good one, and too much emphasis cannot be laid on the admonition to regulate the size of the dose according to the individual. Only by such care can deaths from salvarsan be avoided. Wechselmann's caution against giving salvarsan immediately after intensive mercury therapy can at least warn us against overenthusiasm in both lines.

His special pleading on behalf of salvarsan is well illustrated in the following passage (p. 59): "According to all these findings we are justified in saying that salvarsan of itself is not poisonous to normal human beings in the usual dose. A failure of some organ, especially the kidneys, is always responsible. For this insufficiency mercury is often to blame, only perhaps exceptionally salvarsan or such other factors as the effect of syphilis or other infections on the blood-vessels."

His conclusions (after a review of 140 cases in the literature) are also worth quoting: "One sees that here is a many-colored mixture of fatal cases of no single type, for only the smallest percentage of which can salvarsan be blamed. The very variety of the pathologic conditions under which encephalitis hemorrhagica appears shows that salvarsan, at least for the great proportion of these cases, is only a determining factor, not the real cause of death. Therefore no explanation applying to all cases can be made. . . . A glance at the case histories shows how blindly salvarsan was at first used and that certainly most of the deaths could have been avoided. . . . We are well aware that our exhibit is very incomplete, and that we have often arrived at conclusions through analogy and deduction. But because of the great practical value of a review of the salvarsan deaths I hold it my duty, in spite of the incompleteness of my data, to present further precautions in the use of salvarsan. . . . Only after these precautions are observed can the real investigation of apparently so simple but really so complex a question as that of deaths from salvarsan be instituted."

No one can dispute the statement that many of the deaths from salvarsan have been caused by its ill-considered use either in the face of contra-indications or in too large or too frequent dosage; but to argue from this that the fatalities are therefore not due to salvarsan and that salvarsan is not toxic is far from logical. The unwise use of salvarsan may be expected as a result of such arguments, and the stubborn denial of the toxicity of the drug has encouraged its careless administration. The arguments advanced by Wechselmann will be to the thoughtful reader a warning against the indiscriminate use of a remedy that has proved itself dangerous if handled without due caution.

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[1] Wechselmann, Wilhelm: Ueber die Pathogenese der Salvarsantodesfälle, Urban and Schwarzenberg, Berlin.

# Current Comment

### AN EASY TEST FOR SUSCEPTIBILITY TO DIPHTHERIA

In many persons the blood normally contains diphtheria antitoxins in readily demonstrable quantities. This is the case in about 80 per cent. of the new-born, 90 per cent. of adults and from 50 to 60 per cent. of children. There are good reasons for believing that such persons are insusceptible to diphtheria, and if this is true, then the prophylactic injection of diphtheria antitoxin might be omitted in many cases, provided it were possible to detect promptly the persons supplied by Nature with antitoxin. A practicable method for this purpose appears to be available in the intracutaneous injections of minimal quantities of diphtheria toxin. Such injections are followed in a few hours by a definite reaction of local redness and infiltration in persons devoid of antitoxin, while persons having natural antitoxin in the blood as a rule give no reaction at all of this kind. That the reaction is really significant is indicated by the fact that children sick with diphtheria give the reaction when tested before having received antitoxic serum; on the other hand, the new-born, who as a rule do not contract diphtheria, give the reaction only in exceptional cases. Schick,[1] who has been working on this reaction in von Pirquet's clinic in Vienna, observed that among the nurses those giving the reaction are likely to become sick with diphtheria. Systematic observations by several workers indicate that according to the results of the intracutaneous injection of diphtheria toxin 93 per cent. of the new-born are protected, 57 per cent. of children in the first year, 37 per cent. of children between 2 and 5 years of age, and 50 per cent. of children between 5 and 15. These figures indicate that at all ages a large proportion of children really may not need to receive preventive injections of antidiphtheria serum. Presumably, adults are protected in still larger proportions. The test is very simple: the quantity of toxin injected is one-fiftieth of the minimum lethal dose for the guinea-pig, and this is diluted so as to represent 0.1 c.c. of fluid. The results are available at the end of twenty-four hours. This test seems to be easily adaptable to institutions of various kinds; when diphtheria breaks out, all the inmates can be tested and only those who show inflammatory reaction injected. In this way much annoyance on account of serum reactions as well as much expense may be avoided. The results of further observations will be awaited with interest.

### ALCOHOL BARRED FROM THE NAVY

Alcohol as a beverage has been barred out of the United States Navy. Following the recommendation of Surgeon-General Braisted, Secretary of the Navy Josephus Daniels has issued an executive order abolishing all alcoholic liquors from every ship and station of the Navy. The order reads, "The use or introduction, for drinking purposes, of alcoholic liquors on board any naval vessels, or within any naval yard or station, is strictly prohibited, and commanding officers will be held directly responsible for the enforcement of this order." The significance and extent of the change which has taken place in popular views regarding alcohol, as indicated by this sweeping order of the secretary, can be appreciated only when one recalls the stories of naval experiences of past generations, when rum, brandy and whisky formed a part of the regular official rations, when liquor of some kind was served, as a routine procedure, to officers and men before going into action, and when one of the chief characteristics of sailors, whether officers or seamen, was their ability to dispose of an amazing quantity of intoxicants. The development of scientific methods and the use of instruments of precision in warfare have made alcohol absolutely detrimental to the modern naval man. Sea-fights in the past were won by brute hardihood and physical endurance which could perhaps be stimulated, temporarily at least, by large doses of alcohol. The modern war-ship is a floating laboratory of delicate and accurate machines. The gun-pointer who directs a 14-inch rifle on the modern man-of-war needs not only personal courage, but also absolute steadiness of nerve, clearness of vision and fine muscular coordination. All these things modern physiology has shown to be impaired by even small amounts of alcohol. The engineer who superintends the machinery at the heart of the modern battleship, the man at the wheel who directs its course and the captain or the executive officer on the bridge, as well as the most humble member of the crew, need at all times to be in a condition of maximum physical and mental efficiency. Intoxication in the naval officer to-day might easily be as disastrous as cowardice and treason. Surgeon-General Braisted's recommendations and Secretary Daniels' order are simply in line with our growing knowledge. The nation needs on its battleships to-day the most capable, clear-headed, cool-brained and steady-handed men, and these men are not found among the habitual or occasional users of alcohol in any form. Entirely aside from moral or sentimental reasons, and considered simply as a scientific regulation in the interest of efficiency, this order will recommend itself to the vast majority of the American people.

### THE FORMATION OF FAT FROM PROTEIN

The time has passed when an undue accumulation of fat in various organs and tissues can be labeled "fatty degeneration" without further concern as to the conditions causing the accumulation. The demonstration of the wide-spread occurrence of a true "fatty infiltration" has broadened the views concerning the phenomena of fatty metamorphosis. In accordance with the theory of Virchow, to whom we owe the early classic investigations on the histology and pathology of these changes, they were long considered to be due to a direct transformation of cell proteins into fat — a true fatty degeneration of protoplasm. This in turn became one of the strong arguments in favor of the theory of the direct formation of fat from protein. Many additional evidences to support the theory were brought from other fields of study, among them the supposed increase in fat in the ripening of protein-rich cheese. This "proof," like many others used to maintain this much-debated point, must also be finally discarded. Kondo[1] has demonstrated by painstaking analyses that under no circumstances does an increase occur in the fat content of ripening cheese. When the process goes on in the presence of fungi exposed to the air, there usually is an actual disappearance rather than a new formation of fat; and even in an atmosphere deprived of oxygen, the quantity of fat at best remains unchanged.

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[1] Schick: München. med. Wchnschr., 1913, lx, 2608. This article gives the references.

## PUBLIC EDUCATION THROUGH LOCAL NEWSPAPERS

A striking illustration of the way in which our local medical organizations can instruct the public on health topics is found in the special Y. W. C. A. edition of the Knoxville (Tenn.) *Sentinel,* issued by the women of Knoxville. This edition contains a large number of special articles on many topics of local and general interest, an entire page being given to public health. A large share of this page is occupied by an article on "Organized Medicine, What it Stands for, and Some of the Things it has Accomplished," which presents the entire argument for medical organization as a benefit to the public. The objects and advantages of organization, for both local and national associations, are presented clearly and forcibly. Other articles on the page are, "Immunity First Aid to Preventive Medicine";"Advantages Claimed for General Hospital Plan"; "Garbage Disposal," and "Vivisection." A reprint of Rudyard Kipling's article on "The Doctor and the Patient" from the *Ladies' Home Journal* completes the page. This example is a good one for other county societies to follow. In counties in which the medical profession is properly and effectively organized, a request from the society as a body, for an insertion in the leading papers of the county of suitable educational articles on public health topics, will be disregarded by very few local newspapers. Articles prepared under the supervision of the county society and published with its approval will carry an amount of authority and influence that would not be possible in the case of articles prepared and signed by individual physicians. With the advance in preventive medicine and the increase in knowledge of the methods of transmission of contagious diseases, the doctor is reverting more and more to his original rôle of teacher, and the sooner physicians as a class qualify themselves for this educational function, the sooner will they have the overwhelming support of intelligent people.

## HOLMES, NOT SEMMELWEIS

We recently received a reprint of the memorial address delivered at the annual banquet in honor of Semmelweis by Julius Dollinger,[1] professor of surgery at Budapest. It is a commendable custom thus to keep alive the memory of a physician who has helped by a great discovery to preserve the lives of countless women in the performance of their highest service to the world. Although no history of Semmelweis' work was given, Dollinger assumes that Semmelweis was the originator of the theory of the contagiousness of puerperal fever. He is probably unaware that before Semmelweis announced his views the leading English authorities regarded puerperal fever as a specific contagious disease, and that, in America, Oliver Wendell Holmes in a masterly essay had presented the true situation and had aroused the members of the American profession to appreciate their responsibility for the spread of this dread disease. The clinical proof offered by Semmelweis enabled him, in the face of much opposition from obstetricians of Continental Europe, to establish the contagiousness of puerperal fever. He well deserves the honor which he has received, but his countrymen ought to remember that the glory of this great achievement is not for Hungary alone. A wider acquaintance with literature would obviate such mistakes. We may repeat the question which we asked some years ago.[2] Why should not America honor Holmes as Hungary has honored and still honors Semmelweis? Why should not we, like the Hungarians, by an annual dinner or address, recall the work of Holmes and incidentally testify to the value of early American medical work and literature?

## CHIROPRACTIC

Chiropractic is a freak offshoot from osteopathy. Its followers assert that disease is caused by pressure on the spinal nerves and can be eradicated by "adjusting" the vertebrae. It is the sheerest kind of quackery, practiced largely by men whose general education is as limited as their knowledge of anatomy, and who are profoundly ignorant of the fundamental sciences on which the treatment of disease in the human body depends. Chiropractic is taught — heaven save the mark! — on the mail-order plan. The modern medical school requires that its matriculants have a fairly good general education. The so-called "colleges" of chiropractic matriculate anybody who can pay the fee. The medical school requires, in addition to a good preliminary educational foundation, four years — in some cases five — of hard study with much practical work before granting the degree of doctor of medicine. The chiropractic "schools" profess to teach individuals how to treat disease by a few weeks' mail-order instruction. Study the advertisements of any concern that professes to give a "course" in chiropractic. Send for the advertising matter and obtain the follow-up letters by which these alleged schools obtain "students." The key-note of every piece of advertising matter that emanates from these sources is that there is "big money" in chiropractic. Chiropractic is in no sense a profession. It is a scheme by which sharpers induce men, generally of little education and with a dwarfed sense of moral obligation, to learn the tricks of a disreputable trade — quackery.

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[1] Kondo, K.: Ein experimenteller Beitrag zur Frage der Fettbildung aus Eiweiss bei der Reifung des Käses, Biochem. Ztschr., 1914, lix, 118.

[1] Dollinger, Julius: Semmelweis-Denkrede, Pester Medizinische-Chirurgische Presse, 1914, L, No. 6.

[2] Puerperal Fever and the Monument to Semmelweis, editorial, THE JOURNAL A. M. A., Dec. 8, 1906, p. 1920.

# *Medical News*

## ARIZONA

**Personal.**—Dr. Thomas Watkins, after five years connection with the medical department of the Copper Queen Company at Bisbee, has resigned and returned to his former home, Richmond, Va.

**Arizona Anti-Tuberculosis Society.**—The Arizona Anti-Tuberculosis Society, of which Dr. John W. Flinn of Prescott is president, will meet in Tucson the day following the session of the state society.

**Meeting of State Medical Society.**—The State Medical Society will meet at Tucson, April 20, 21 and 22. Arrangements are in charge of the local committee of which Dr. Meade Clyne is chairman.

## CALIFORNIA

**Personal.**—Dr. Percy T. Phillips, Santa Cruz, fractured two ribs in an automobile accident near Calistoga, March 29.——Dr. William E. MacCoy, Los Angeles, was awarded $1,000 in his suit for payment for medical services against H. R. Gage, March 23.

**Summer School of Medicine.**—Stanford University Medical School, San Francisco, announces that it will offer a summer course for physicians from July 6 to August 16. Special work will also be given in the laboratories of the medical school, in the Lane Hospital, the San Francisco City and County Hospital and the Isolation Hospital.

**New Officers.**—Southern California Alumni Association of the College of Physicians and Surgeons, Chicago, at Los Angeles, March 24: president, Dr. Charles H. Whitman; secretary, Dr. Walter F. Wessels, both of Los Angeles.——Lassen-Plumas Counties Medical Association at Susanville: president, Dr. William E. Dozier; secretary-treasurer, Dr. Robert W. T. Garner, both of Susanville.

## ILLINOIS

### Chicago

**Personal.**—Dr. Arthur R. Elliott, who was operated on for appendicitis at St. Luke's Hospital, April 3, is making satisfactory progress toward recovery.

**Banquet of County Hospital Physicians.**—The annual banquet of the Cook County Hospital physicians was held in the new Fort Dearborn Hotel, April 2. One hundred and four physicians and guests were present. Dr. Frederick G. Dyas acted as toastmaster.

**Baby Week.**—The Chicago Infant Welfare Society has announced April 19 as the beginning of "Baby Week," during which a vigorous campaign will be conducted to interest every one in the subject of infant welfare in Chicago. Out of this work it is hoped that a permanent campaign may be vitalized. The churches, newspapers, moving picture theaters, posters, theater programs and many other agencies will be employed in arousing interest in the campaign. The society maintains stations with trained nurses in charge where mothers may go for advice and help, and nurses are sent to the homes. In 1913 the society spent between $25,000 and $30,000 in maintaining thirteen infant welfare stations; 1,212 conferences were held, 3,678 babies were cared for and 41,647 calls were made by the thirteen nurses. The physicians connected with the work of the society donated their services. The general infant mortality of Chicago is 19.6 per cent., whereas in the area in which the society carried on its welfare work the death-rate was 3.8 per cent. It is hoped that fifty stations may be maintained during the present year.

## INDIANA

**Small-Pox.**—The small-pox epidemic in Indianapolis is on the decrease; 458 cases were reported during the month of February without a single death.

**Hospital at Bloomington.**—A new hospital for Bloomington, Ind., is one of the promises of the near future; $40,000 is being raised by local federations of clubs for that purpose.

**Tuberculosis Dispensary.**—The opening of the dispensary of the Fort Wayne Anti-Tuberculosis League at 39 Schmidt Block occurred March 16. Drs. Eric A. Crull, Edmund M. Van Buskirk and Charles G. Beall are on the staff of physicians. The dispensary is in charge of Miss Irene Byron, visiting nurse.

**Tuberculosis Camp and Hospital.**—A farm of eleven acres has been offered to the city of Indianapolis for the establishment of a temporary tuberculosis camp. The county commissioners of Marion County have decided that a hospital for tuberculosis patients will be erected in the near future as it has been shown that there were 2,715 deaths from tuberculosis in Marion County during the past five years.

**Personal.**—Dr. John Eberhart and son Clyde of Lewis Creek were badly burned by a gasoline explosion.——Dr. George W. Bowman and Dr. Walter Tinsley have been appointed district physicians at the city dispensary, Indianapolis.——Dr. William F. Walsh, Indianapolis, was seriously injured by being struck by a Cincinnati, Hamilton and Dayton Railroad train, March 21.——Dr. Luke H. Kelly, Hammond, was injured in an automobile accident, March 26. He was removed to St. Mary's Hospital, where it was found that several ribs were fractured, and that he was severely bruised.

**Visiting Nurses in the Public Schools.**—The City Board of Health, Indianapolis, has decided to inaugurate a system of visiting nurses in the public schools. As $10,800 is raised annually on a one-half cent tax levy for school inspection which is provided for by the state law, part of this will be devoted toward employing nurses. It is expected by next fall sufficient funds will be available to provide for an assistant superintendent of nurses at the city hospital, who will have charge of all nurses. At first pupil-nurses from the city hospital will be employed, who will devote part of their time to the work; later regular nurses will devote all their time to it.

## LOUISIANA

**Personal.**—Dr. Thomas B. Pugh, Napoleonsville, has been named as mayor of that city.——Dr. Sidney D. Porter has been named as chairman of the coming conference on hookworm, which is soon to be held in New Orleans.

**Meeting of State Medical Society.**—The Louisiana State Medical Society will meet at New Orleans, April 21. The meeting of the society will be preceded, April 19 and 20, by the conference of State Health Officers. Special rates have been arranged with the hotels.

**New Parish Societies.**—The Webster Parish Medical Society was organized at Cotton Valley, March 9. Dr. Fred J. Mayer, Opelousas, addressed the meeting on small-pox and typhoid vaccination.——The Medical Society of St. Martin's Parish was organized with the assistance of Dr. Fred J. Mayer, president of the State Medical Society, March 23. The following officers were elected: president, Dr. A. P. Sillan; secretary-treasurer, Dr. E. Fred Stockton, both of St. Martinville.——Lafayette Parish Medical Society at Lafayette: president, Dr. John L. Chiasson, Scott; secretary-treasurer, Dr. Merrick E. Saucier, Lafayette.

**Improvements at Leper Station.**—At the meeting of the board of control of the Louisiana Leper Home, White Castle, preliminary plans were presented for improvements for the home. Plans for additional cottages are included and for a large central building which will operate the sewage disposal plant, hot and cold water-supply, electric light and fuel-producing systems and refrigerating plant. The home now cares for eighty-seven patients, but additional rooms are necessary. It is estimated that only one-third of the lepers of the state are inmates of the institution. The legislature will be asked for a larger appropriation to cover the improvements.

**Medals for Distinguished Services.**—Drs. Charles C. Bass, Charles W. Duval and Abraham L. Metz were presented with medals of honor, March 14, by the resident members of the National Institute of Social Sciences, New Orleans. The presentation took place in the council chamber of the City Hall, and was in honor of the distinguished services performed by the physicians in scientific research. The distinguished services mentioned in the case of Dr. Bass were his cultivation of malarial plasmodia, a test for typhoid fever, and his contributions to the study of hookworm and pellagra. In the case of Dr. Duval, for his discovery of the cause of epidemics of dysentery, in collaboration with Dr. Charles E. Verdier, his contributions to the study of tuberculosis, arteriosclerosis, pneumonia and the treatment of leprosy. Dr. Metz was honored for his sanitary work in connection with yellow fever in 1897 and 1905, and for his crusade against insanitary dairies and adulteration of milk, and for much other sanitary work of peculiar excellence.

## MARYLAND

### Baltimore

**Bond Issue for Sydenham Hospital.**—The bill, authorizing a bond issue for $750,000 to provide an adequate hospital for infectious diseases for Baltimore city, has been passed by the general assembly.

**Home for Widows and Orphans of Physicians Aided.**—The Dawkins bill, appropriating $3,000 annually for the next two years for the support of the Home for Widows and Orphans of Physicians of Baltimore, was passed by the general assembly and signed by the governor.

**To Aid Mercy Hospital.**—To arouse interest in Mercy Hospital and to give their business judgment for the extension of the institution, more than a score of business and professional men held a meeting in the board rooms of the Fidelity Trust Company on April 3 and partially perfected an organization. Cardinal Gibbons was elected honorary general chairman.

**Small-Pox in Johns Hopkins Medical School.**—Chester A. Downes, a member of the graduating class of Johns Hopkins Medical School, was taken to the Quarantine Hospital last week after an examination had disclosed that he was suffering from small-pox. At the Johns Hopkins Hospital it was stated that great precautions are being taken to prevent an outbreak of the disease among the students and the faculty, all of whom will be required to undergo vaccination.

**Personal.**—Dr. William J. Coleman, Baltimore, superintendent of University Hospital, has been confined to his bed with an attack of grip. It is thought that he will be able to resume his duties within a few days.——Dr. Horace M. Simmons, formerly editor of the Maryland Medical Journal, is traveling in the Hawaiian Islands.——Dr. A. Trego Shertzer has been seriously ill at his home for the past ten days.

**Hopkins Man to Plan Big Hospital.**—The directors of the University of California, after looking over the relative attainments of many hospital organization specialists throughout the country, have selected Dr. Winford H. Smith, superintendent of the Johns Hopkins Hospital, to act as consultant of building, organization and administration plans of the new $1,000,000 hospital to be erected in San Francisco in connection with the University. Dr. Smith has left for the Western city and will be gone about eight weeks. During the last three years Dr. Smith has helped to plan the Phipps Psychiatric Clinic, the Harriet Lane Children's Hospital, the Brady Urological Clinic, and the Marburg Ward, the four big departments of Johns Hopkins Hospital.

**Crusade for Clean City.**—The Health Department, in cooperation with the Police Board, as a result of a conference at the City Club, has started a clean city crusade that promises permanent results. The plan will be worked out by means of a corps of sanitary policemen to be detailed by the Police Board and known officially as the "Sanitary Squad." Every patrolman is to be made responsible for the cleanliness of his beat, both as to alleys and private premises. Patrolmen are to be instructed and their work supervised by eight sanitary officers, one for each police district. The commissioner of street cleaning will cooperate to the extent of removing all refuse he is required by law to haul away. The assistance of the Women's Civic League has also been assured. It will be the duty of the "Sanitary Squad" to inspect all alleys in the districts to which they are assigned and see that garbage is not left lying where it will attract mosquitoes and vermin, as well as rodents. It will be their duty to educate the public in taking proper precautions against any negligence which might result in the spread of disease.

## MONTANA

**Spotted Fever.**—Two cases of Rocky Mountain spotted fever have been reported from Hamilton and Stevensville, in the Bitter Root Valley. Surgeon L. D. Fricks of the United States Public Health Service has again taken up the study of the tick fever in the valley.

## NEBRASKA

**Meets in New Quarters.**—The Douglas County Medical Society met, March 3, in its new quarters in the Omaha City National Bank Building. The address was by Dr. Fred C. Zapffe of Chicago, on "Bone Tumors," and was illustrated by lantern slides.

**Meeting of State and Local Health Officers.**—The second annual conference of the state and local health officers was held in Lincoln, March 11. Nearly two hundred health officers were in attendance. The conference was in session two days at the Lincoln Hotel.

**Society Meeting and Banquet.**—The Fillmore County Medical Society met March 10 at the Hotel Jamieson in Geneva. They had as guests members of the dental profession residing in Fillmore or surrounding counties. After the business meeting, a banquet was held in honor of Dr. Royal Woods, a practitioner of twenty-five years' standing in Geneva who has recently removed to Heigler.

**New Fraternity House for Physicians.**—On March 9, ground was broken for the new fraternity house of the Iota chapter of the Phi Rho Sigma fraternity. The occasion was the thirteenth anniversary of the founding of the chapter at Omaha. The program was in charge of Drs. M. F. Tinly, Burton W. Christie and others. The fraternity house is to be at Forty-Second and Dewey Avenues and will cost $15,000. It will be a three-story structure with basement, and fitted with club and living rooms.

**Decision Validating Sanitary District.**—The Supreme Court of Nebraska, March 13, affirmed the decree of the Lancaster County District Court, validating the laws creating Lancaster County a sanitary district. This district had been in existence for twenty years and much work had been done in the way of public sanitation and upwards of $200,000 had been spent. The injunction was asked in 1911 by C. O. Wheedon, to enjoin the sanitary district from performing its functions on the grounds of unconstitutionality.

**Personal.**—Dr. Albert P. Fitzsimmons, Tecumseh, has received notice of his appointment as a member of the municipal commission of the Philippine Islands.——Dr. Clinton K. Timmons, Columbus, has received his appointment as surgeon of the Illinois Central Railway, with headquarters in Chicago.——Dr. Oscar S. Hoffman, Omaha, after an accident in which his shoulder was dislocated, made two calls on his patients before having the dislocation reduced.——Dr. W. Howard Heine, Hooper, had his collar-bone broken in an automobile accident.

## NEW YORK

**New Officers.**—Utica Medical Club, March 19: president, Dr. Frederick R. Ford; secretary-treasurer, Dr. Raymond L. Baker.

**Berlin Professor to Lecture in Buffalo.**—Prof. Ludwig Pick, Berlin, will deliver the Herrington lecture to the Medical Department of the University of Buffalo. His topic will be "Some Advances in Pathologic Anatomy."

**Personal.**—Dr. Harriet M. Doane has been appointed health commissioner of Fulton.——Dr. J. W. Cox, pathologist to the Crouse-Irving Hospital, Syracuse, has resigned on account of ill health.——Dr. Erastus Corning, Albany, has been appointed a trustee of the State Hospital for Incipient Pulmonary Tuberculosis.

**Tuberculosis Among Cows.**—The New York Milk Committee has just sent to Governor Glynn the statement that 500,000 of the 1,500,000 dairy cows in this state are tuberculous and that 40 per cent. of these are spreaders of the disease. The suggestion is made that the Webb bill, providing for a compulsory examination of all dairy cattle and the destruction of all showing physical signs of disease would only slightly retard the spread of the disease. It was urged that such physical examination of dairy cows was irregular and uncertain and would only detect a small percentage of the cows affected. It was stated that the only reliable method of detecting bovine tuberculosis was by the tuberculin test. It is asserted that 90 per cent. of the residents outside the city of New York consume raw milk and are therefore exposed to infection.

**Wood-Alcohol Legislation.**—A joint hearing was held on March 18 on the Griffin-Thorn bill which prohibits the manufacture and sale of wood alcohol combinations without the poison label. The bill was drafted by the New York Committee for the Prevention of Blindness and has the support of a number of influential organizations. It prohibits the manufacture or sale of any article of food or drink containing methyl alcohol or of any preparation or mixture containing methyl alcohol intended for internal use by man. It provides also that no person or corporation shall sell or offer for sale methyl alcohol in any form, or any preparation containing methyl alcohol, under any name or trade mark, unless there be affixed to the bottle or vessel containing the a conspicuous label bearing the words "Poison, Likely to Cause Blindness or Death." Violation of the provisions of this bill is made a misdemeanor.

### New York City

**For Maternity Hospital.**—A seven days' carnival was opened March 28 for the benefit of the Bronx Maternity Hospital which is to be erected at Hunt's point. There is a baby show in connection with the carnival in which more than 1,500 babies have been entered.

**Physical Examination for City Workers.**—Employees of the New York City Health Department, 3,000 in number, are to be physically examined, that the department may have a record of the physical status of its employees. This step is in accordance with the plans of the Life Extension Institute.

**Babies' Dairy Exhibit.**—The Babies' Dairy in West Forty-First Street recently gave an invitation exhibit of its method used in preparing milk for sick babies less than a year old. The milk is supplied in single-feeding bottles in refrigerator boxes containing a day's supply. The babies are examined by physicians and the proper amount of milk prescribed and then put up by experts. There are now three such dairies in different parts of the city.

**Large Gift for Animal Study.**—It is announced that John D. Rockefeller has given an additional $1,000,000 to the general endowment fund of the Rockefeller Institute for Medical Research for the purpose of organizing a department for the study of diseases of animals. It was also announced that James J. Hill had pledged $50,000 to aid in the study of hog cholera. Hitherto the Institute has confined itself to investigations in the fundamental problems of biologic science and to investigations in the field of human diseases. One of the features of the work of the new department, it is said, will be the study of cattle tuberculosis.

**Urges Vaccination on All.**—Health Commissioner Sigismund S. Goldwater is having printed for immediate distribution throughout the city 800,000 circulars warning those in need of vaccination not to delay in taking this precaution, owing to the prevalence of small-pox in the northern part of this state and in Pennsylvania, Ohio and South Carolina. There has not been a general vaccination of those living in New York for twelve years and it is estimated that a general vaccination would cost $150,000. Dr. Goldwater states that the school children are all protected but that vaccination is neglected among very young children and adults.

**New Procedure in Typhoid Fever.**—On March 2, two important changes in the method of sanitary supervision of typhoid fever went into effect. The first was the adoption of the district unit system of direct assignment and report. That is, each inspector calls daily at the branch office, receives his new assignments and reports for those of the previous day. The second change is the prompt investigation at milk stores, by policemen of the sanitary squad, of the source of supply of the milk used in families of persons suffering from typhoid fever. This is another step along the line of employing policemen for police duty in health matters. Motorcycle policemen also deliver diphtheria antitoxin to the homes of patients in the different boroughs. This has proved highly satisfactory and it is believed that similar results may be expected in the milk work.

**Personal.**—Dr. Max Terbst has been elected a member of the board of managers of the Mohansic State Hospital.——A farewell dinner will be given to Dr. Elise S. L'Esperance, winner of the Mary Putnam Jacobi fellowship, at the residence of Dr. Emily Dunning Barringer, April 14. Dr. Alice Rohde, Pittsburgh, Pa., first winner of the fellowship, will also be a guest of honor on this occasion. Dr. L'Esperance sails for Europe this month to continue her research work on cancer.——Captain Arthur N. Tasker, M. C., U. S. A., has been appointed professor of tropical medicine at the Long Island College Hospital.——Dr. J. J. Flynn, resident physician of St. Mary's Hospital, Brooklyn, was painfully injured in a collision between his automobile and a trolley-car, March 28.——Dr. Haven Emerson has been appointed sanitary superintendent of New York City, vice Dr. Walter Bensel, retired.

**Encouraging Vaccination.**—On account of a number of instances of small-pox arising from infected persons coming in from outside of the city, and the constant danger to which persons visiting the large stores, hotels, theaters, etc., are subject from such sources, more complete vaccination is urged by the Department of Health. A recent canvass by the department shows that while a large proportion of the population has been vaccinated, in many instances it has been so long ago that the protection has probably been lost, and revaccination of every one is urged. In order to facilitate this the department offers to furnish the vaccine and even to vaccinate every one who applies. The proprietors and managers of large establishments, stores, hotels, factories, etc., are especially urged to have their employees vaccinated, and when this has been done the department proposes to place them on a "white list" to which publicity is to be given through the bulletins of the board and otherwise, as being places protected against small-pox and safe for persons to visit.

### NORTH CAROLINA

**Hospital Notes.**—The city council of Wilmington has decided to increase the annual income of the James Walker Memorial Hospital from $6,000 to $9,000.——The McDaniel Memorial Hospital, Kinston, has changed its name to the Parrott Memorial Hospital. It has an authorized capital stock of $25,000. An additional building of brick and stone has been erected, and will contain surgical rooms and nurses' quarters.——Dr. Isaac M. Taylor, Morganton, proprietor of the Broad Oaks Sanitarium, has purchased Catawba Heights, near Morganton, and will establish a sanatorium there.

**Personal.**—A banquet was given in honor of Dr. Lewis G. McBrayer, Asheville, by the Buncombe County Medical Society, March 28.——Dr. M. Hall Fletcher, Asheville, has been appointed local surgeon of the Southern Railroad.——Dr. William T. Rainey was operated on for appendicitis at Highsmith Hospital, Fayetteville, March 26.——Dr. Thomas A. Norment, Lumberton, has resumed practice after an absence of several months.——Dr. William T. Parrott, Kinston, fractured his forearm and two ribs while cranking his motor-car recently.——Fire at Durham, March 25, destroyed the offices of Drs. Robert L. Felts, Rufus J. Teague, Burton W. Fassett, S. Dace McPherson, Lyle S. Booker and Norval L. Coiner, all of whose offices were located in the Duke Building.

### OHIO

**Small-Pox.**—It is interesting to note in the annual statement submitted by Chief Medical Inspector, William H. Peters, of the Department of Health, that forty-five cases of small-pox were reported during the year, thirty-eight of which had never been vaccinated, and not one of which had been vaccinated during the past seven years. This report is entered as a strong plea in favor of vaccination.

**Board of Health.**—The recent controversy which took place between the Mayor and the Board of Health has been very satisfactorily adjusted. In view of the excellent character of the service rendered by the present board throughout its administration, great pressure was brought to bear by its friends, both personal and professional, by business organizations and various civic bodies, to the effect that the members were induced to withdraw their resignations and resume their official duties, thus putting an end to a very deplorable situation.

**Personal.**—Dr. Robert Austin, Xenia, has been appointed pathologist and second assistant surgeon to the St. Mary's Hospital, Rochester, Minn.——Dr. De Witt T. McGriff, Lima, is in the City Hospital on account of an accident in which his automobile was struck by some cars which were being switched on the Erie Railroad.——Dr. Louis F. Bucher, Dayton, has been reelected president of the League of German-American Societies.——Dr. and Mrs. Charles W. Thomas, Warren, gave a dinner in honor of Dr. Clarence S. Ward on the anniversary of forty years of service in the practice of medicine in Warren.

**Ruling on Plumbing Code.**—The attorney-general of the state of Ohio has recently ruled that the state plumbing code is the minimum standard code of Ohio, and is effective in all communities in the state whether local regulations have been promulgated or not. About thirty municipalities have adopted regulations concerning plumbing, and the same number have local systems of plumbing inspection. The state plumbing inspector and his assistant have sole jurisdiction in enforcing the plumbing code in all other parts of the state. An attempt is being made to increase the force of local inspectors, and the campaign is meeting with some measure of success.

**Tuberculosis Hospital.**—On March 31, the ground was broken for the additional building of the Cincinnati Tuberculosis Hospital. Dr. Christian R. Holmes, in addressing the gathering, gave an interesting history of the growth of the work done in connection with the tuberculosis movement, and submitted some valuable suggestions for its continued progress. He laid particular stress upon the suggestion that provision should be made by the city to give professional nursing to the middle classes afflicted with tuberculosis in its early stages, this service to be furnished at a moderate rate, within the means of the patient. Dr. Simon F. Cox, of Boston, gave some very interesting data connected with his study of tuberculosis in European sanatoria, drawing therefrom conclusions which furnished valuable suggestions for the work in Cincinnati.

**Public Health Exhibit at Newark.**—A new feature was added to the Public Health Exhibit of the Ohio State Board of Health in Newark, when a local newspaper, the *Advocate*, undertook a health contest. Coupons were printed in each issue and these could be exchanged for attendance coupons after each public health lecture. Three attendance coupons rendered the owner eligible to enter the contest. Each person submitted ten suggestions for the betterment of health conditions in Newark, and there were three prizes offered, $50 in all. This plan was so successful in Newark that it was continued in Zanesville and Coshocton, where it met with the same success. Not only was the attendance at the public health lectures increased but more interest was taken in local sanitary conditions, and the suggestions offered were in many cases not only interesting but of practical value.

**State Board Ruling as to Dumping Refuse.**—The local board of health of Put-in Bay requested the State Board of Health to define their authority in controlling the dumping of refuse into Put-in Bay from boats lying alongside the docks. Thousands of day excursionists come to this summer resort, eat their lunches on board and the refuse is afterward dumped into the bay. Much of it is carried in shore and lodges there, creating a condition that is not only unsightly but becomes a nuisance when there is putrescible matter in the refuse. This condition is found not alone in Put-in Bay but at all summer resorts fronting Lake Erie. This inquiry of the local board of health was forwarded to Attorney-General Hogan who ruled that such board had ample power and jurisdiction to provide for the abatement of the nuisance in question, and that such power also resided in the legally constituted board of health of any township. This decision is of great moment to all boards of health having jurisdiction along the lake front.

## OKLAHOMA

**Personal.**—Dr. Loyal M. Martin, Newkirk, recently sustained a fracture of the scapula in an automobile accident.

**Hospital Notes.**—The Muskogee City Hospital has been turned over to the Physicians' and Surgeons' Hospital Association of that city, recently incorporated by Drs. Francis B. Fite, Sessler Hoss and Frederick J. Wilkiemeyer, Muskogee. ——A movement has been started to construct a hospital at Bartlesville.

**New Officers.**—Adair County Medical Society: president, Dr. David A. Beard, Westville; secretary-treasurer, Dr. Charles M. Robinson, Stillwell.——Pottawatomie County Medical Society: president, Dr. John E. Hughes; secretary-treasurer, Dr. Walter C. Bradford, both of Shawnee.——Woodward County Medical Society: president, Dr. Fred L. Patterson, Fargo; secretary-treasurer, Dr. Jesse J. Davis, Woodward.——Woods County Medical Society at Alva, March 31: president, Dr. Romulus Z. Linney, Hopeton; secretary, Orion R. Gregg, Alva.

## PENNSYLVANIA

**Trachoma at Farrell.**—Fifteen cases of trachoma have been reported among the employees of the Carnegie mills at Farrell and the situation is under investigation by the State Health Commissioner.

**Personal.**—Dr. George A. Stock, superintendent of the State Tuberculosis Dispensary, Danville, has retired, and has been succeeded by Dr. Cameron Schultz.——Dr. Edward G. Heyer Hazleton, has been elected superintendent of the Nanticoke Hospital, vice Dr. August Traphold, resigned.

**Small-Pox in Hospital.**—Owing to the discovery of a case of small-pox in the Homeopathic Hospital of West Chester, that institution has been quarantined for sixty days. The entire hospital staff consisting of five doctors and eleven nurses was vaccinated on March 20, as well as the forty-eight patients. There are a number of cases at Toughgenomen and Kennett Square and all schools and churches are closed. Dr. Charles J. Hunt of the State Health Department has ordered guards stationed at all houses where the disease exists.

### Philadelphia

**Hospital Purchases Site.**—The Northeastern Hospital has purchased for $7,000 a plot of ground on the north side of Allegheny Avenue 100x80 feet.

**New Ward for Jewish Hospital.**—Work has been commenced on the two-story medical ward building for the Jewish Hospital, to cost $60,000.

**Piggeries to Move.**—On March 22, inspectors from the Department of Health and Charities obtained signed agreements from twenty raisers of pigs that they would vacate their present premises immediately. Those who fail to comply with the law will be liable to a fine of $25, and of $5 a day thereafter until they move.

**Personal.**—Dr. Joseph S. Neff, who has been ill since December last, is convalescing, and has resumed his work as director of the Department of Public Health and Charity.——Dr. John Wanamaker, III, has been assigned to permanent service at the Central Station at City Hall as police surgeon. Heretofore this station had no surgeon of its own.

**Plans of the Child Federation.**—The future plans of the Child Federation include health centers to concentrate the efforts of the nurses and doctors and investigators of the most densely populated square of this city, which is said to contain forty-one thousand people. The work will start on May 1 and continue until October 1. Efforts will be made to eliminate bad plumbing and insanitary conditions and to conduct a systematic campaign of education with practical demonstration.

**County Society Permanent Home Appeal.**—Substantial progress can be reported in the popular movement for a building for the Philadelphia County Medical Society. The Members' Committee of Twenty, that includes some of the most astute financiers in the profession, having a number of eligible properties in view, has decided to call for pledges, subscriptions and contributions to ensure a fund of $40,000 or $50,000. This, in addition to the permanent funds of the Society, will furnish a working capital that must assure success.

**Nurses' Home.**—Contractors are estimating on the plans for building of the Germantown Hospital to be used as a nurses' home, with accommodations for about sixty-five nurses. The building will be fire-proof, and will contain reception rooms, suites for the directress of nurses, and rooms for head nurses. A special feature of the building will be the large recreation or sun rooms on the roof, and a tile roof garden with open porch and sleeping porches. Another feature is the fact that there will be more shower baths than bath tubs.

**Psychopathic Wards at Blockley.**—A great change is under way in the section of the Philadelphia General Hospital in which suspected cases of insanity are temporarily confined. This includes an equipment of at least 140 beds, and a system of treatment that will enable the patients to return to their homes, under the supervision of social workers, instead of being sent to an asylum for the insane. Under the old system, committing physicians simply made an examination of the patients referred to them, and prepared papers for their commitment and admission to asylums.

**Big Corporations Cooperated in "Clean-Up Week" Movement.**—Department stores, merchants, public utility corporations and hundreds of business men in every line of trade throughout the city are heartily entering into the spirit of the "municipal clean-up week" movement, April 20 to 25. Correspondence of business firms, department stores, manufacturers and shopkeepers throughout the city, is being labeled with an attractive blue paster, "Remember Clean-Up Week, April 20 to 25, Philadelphia, 1914," as is also the correspondence of the various departments and bureaus at city hall.

## GENERAL

**Missouri Valley Meeting.**—At the semi-annual meeting of the Medical Association of the Missouri Valley, held in Lincoln, Neb., March 27, it was decided that the next annual meeting should be held in Des Moines and Colfax, Iowa—one day in Des Moines, and two days in Colfax.

**A Warning.**—A man claiming to be a physician has been calling on medical colleges, medical publishers and physicians, and demonstrates various dislocations, throwing joints out of sockets, etc. Incidentally he claims that he is subscription agent for prominent publishers, and on furnishing seemingly reliable references, borrows text-books from the party on whom he calls, and is seen no more.

**Bi-State Association Organized.**—Physicians of Modoc County, California, and Lake County, Oregon, met for organization at Alturas, Cal., March 30, with an initial membership of eighteen. The organization is to be called the Modoc County, Cal., and Lake County, Ore., Medical Association. The following officers were elected: president, Dr. John Stile, Alturas; vice-president, Dr. Hiram B. Eble, Milpitas, Cal.; secretary-treasurer, D. Walter E. Coppedge, Alturas. The next meeting will be held at Lake View, Ore., in June.

**Bequests and Donations.**—The following bequests and donations have recently been announced:

Presbyterian Hospital and St. Luke's Hospital, Chicago, Chicago Visiting Nurse Association, and Chicago Home for Incurables, each $10,000, and Alice Home, Lake Forest, Ill., $5,000. St. Luke's Hospital, Chicago, $500, toward the up-keep of the Solomon H. Smith ward, by the will of Byron L. Smith.

Presbyterian Hospital, Chicago, $10,000, by the will of Frederick William Crosby.

Chicago Charity Hospital, and Chicago Home for Incurables, each $75,000, by the will of Kenneth S. Wallbank, on the death of his wife.

Associated Jewish Charities, $5,000, Chicago Visiting Nurse Association, $500, and Chicago-Winfield Tuberculosis Sanatorium, $3,000, by the will of Isaac Wedeles.

Gil W. Barnard Hospital Association, Chicago, a site valued at $20,000, from J. Newton Roe.

German Hospital, Chicago, $5,000, by the will of Michael Ullrich.

Neversink Mountain Tuberculosis Sanatorium (Pa.), $1,000 donation by the Berks County Commissioners.

St. Luke's Hospital for Women, Shanghai, China, $3,000, by the will of Mrs. Eliza Callahan Stevens, Jamaica Plain.

Methodist Hospital, Philadelphia, $1,000, by the will of Joseph Patten, Columbus, Pa.

St. Vincent's, St. Francis' and St. Joseph's Hospitals, New York City, each one-eighth of the estate of James J. Dunne, valued at more than $20,000.

St. Vincent's Hospital, New York City, $1,000, by the will of William Lummis.

St. Luke's Hospital, New York City, $15,000, for the endowment of three beds, by the will of Mary B. Lane.

**Camps of Instruction for Medical Officers.**—General A. L. Mills, chief of the Division of Militia Affairs, announces that during the coming summer camps will be established for medical officers and non-commissioned officers of the Hospital Corps of the Organized Militia. It is contemplated to provide these camps with complete regimental hospitals and infirmaries, and such other paraphernalia as may be necessary to offer every facility for a thorough course of instruction. These camps are to last six days, the instruction beginning Monday morning and terminating at noon on Saturday. These camps will be located as follows:

Plattsburg Barracks, June 7-13, for medical officers of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, and New York.

Fort Myer, Virginia, May 17-23, for medical officers of Pennsylvania, New Jersey, Delaware, Maryland, Virginia, West Virginia, and the District of Columbia.

Fort Oglethorpe, Georgia, May 10-16, for medical officers of North Carolina, South Carolina, Georgia, Florida, Mississippi, Tennessee, Kentucky and Alabama.

Fort Sheridan, Illinois, May 24-30, for medical officers of Ohio, Illinois, Indiana, Minnesota, Wisconsin, Michigan, North Dakota and South Dakota.

Fort Leavenworth, Kansas, May 17-23, for medical officers of Kansas, Missouri, Oklahoma, Iowa, Nebraska, and Arkansas.

Fort D. A. Russell, Wyoming, June 7-13, for medical officers of Montana, Wyoming, Utah, and Colorado.

Fort Sam Houston, Texas, May 17-23, for medical officers of Texas, Louisiana and New Mexico.

Vancouver Barracks, Washington, June 7-13, for medical officers of Washington, Oregon and Idaho.

Presidio of San Francisco, May 10-16, for medical officers of California and Arizona.

The program of instruction includes the detail of preparing the sanitary personnel of the different units for the field, discipline and education of the Hospital Corps, training of medical officers, and equipment with the regulation supplies and transportation, with the position of the personnel and divisional sanitary units on the march and on the battlefield. During the course, practical talks and lectures on military subjects of interest to medical men will be given by line officers at the posts. In the evenings, the work of the day will be discussed, all members of the class being encouraged to join in the discussion.

## CANADA

**New Brunswick Sanitarium.**—In their report to the provincial government of New Brunswick, the commissioners of the New Brunswick Sanatorium state that many improvements will be added during the present year to the Jordan Sanatorium, and recommend that $7,000 be expended in completing the capital expenditure. This will provide a laboratory, quarters for male help, etc. The original gift of Mrs. J. C. Jordan for this institution was $104,195, while the government has expended $24,802.27.

**Personals.**—Dr. Charles O'Reilly, Toronto, has returned from the Southern States very much improved in health.——Dr. Kennedy C. McIlwraith, Toronto, has gone abroad for several months for hospital work.——Dr. Reginald A. Jones, Toronto, is visiting the New York hospitals.——Dr. J. J. Middleton has returned to Toronto after six months in Great Britain.——Dr. James F. Cattermole, physician at the Penetanguishene Hospital, has been transferred to the Woodstock Hospital for Epileptics, Ontario.——Dr. John A. McCollum, Toronto, has been spending several weeks in Jamaica.

**Pathologists to Meet in Toronto.**—On Friday and Saturday, April 10 and 11, the American Association of Pathologists and Bacteriologists met in Toronto, under the presidency of Prof. J. J. McKenzie of Toronto University; on Thursday preceding the International Association of Medical Museums met in the Pathological Department of the University. Prof. R. M. Pearce of Philadelphia was the president. The American Association for Cancer Research met in the Toronto General Hospital the same day. The latter was under the presidency of Dr. Ernest E. Tyzzer, Harvard University Medical School, Boston.

**Ottawa for Mechanical Filtration.**—The citizens of Ottawa voted on March 31 on the question of a pure water-supply. Sir Alexander Binnie, the well-known British expert, had reported on and in favor of an unfiltered water-supply from Thirty-One Mile Lake at a cost of $8,000,000. The city engineer and the mayor were in favor of mechanical filtration of the Ottawa River water at a cost of $2,000,000. The latter gained the day by a vote of 7,544 for mechanical filtration and one of 6,236 for the Binnie alternative. The city will now proceed to the Ontario Legislature for legislation to raise the money.

**Ontario Board of Health Supplying Antitoxin.**—The Ontario Board of Health has made arrangements to supply antidiphtheric serum to local boards of health and druggists throughout that province. The prices are greatly reduced from what is ordinarily paid for these goods. The antitoxin is of standard quality 30 per cent. in excess of that marked on the label. In syringe packets, 5,000 units will cost boards of health $1.35; to druggists, $1.70; 10,000 units, $2.60 and $3.25. It is also furnished in vials at a less rate. The Ontario Board of Health feels that this arrangement lowers the price of antitoxin in Ontario below that of any other place in the world. Medical practitioners are not to be supplied directly with the serum, but may order through certain dealers and druggists or boards of health.

**The University of Toronto Faces Financial Crisis.**—Unless the government of Ontario comes to the aid of the University of Toronto, this first-class institution will not be able to maintain its place as an institution of higher education. Plain facts have been placed before the government by Sir Edmund Walker, chairman of the Board of Governors, and President Falconer. Although an appointment had been arranged beforehand, only twenty-six members of the legislature were present at the conference between the government and the two aforesaid gentlemen. Sir Edmund showed how the university had grown from 500 students to 4,200, and that when the standard was raised a few years ago it went back to 3,500, but had again come up to 4,000. It was utterly impossible to check the flow of students to the institution. Although no new buildings are urgently needed, there was great necessity for new and enlarged equipment, while the teaching staff was numerically too small. It is a hardship on the governors to pare down the salaries of the three or four hundred men who are following academic life. Either the Governors would have to lessen the attendance, raise the fees or get an increased income. The deficit for the present year is $85,000 and it will be $120,000 for the coming year. In all he estimated the requirements of the university at $1,400,000. President Falconer by producing figures showed that Toronto was among the big institutions of America and that private munificence could no longer be depended on to meet the situation. It is understood that the Western University at London will strongly oppose any further aid at this time to the University of Toronto from the provincial purse.

## LONDON LETTER

LONDON, March 20, 1914.

### Infection from Library Books

Dr. R. Kenwood, health officer for the Borough of Stoke Newington and professor of public health, University of London, delivered an interesting lecture on "Books and Infection" in which he described some recent experiments. He said it had been stated that there was no case on record of book infection, and he admitted that he had not been able to trace any record of such a case; but he said that it was not by any means conclusive that such infection did not take place, for as health officer he was not able to trace the source of infection in 80 per cent. of the cases that came under his notice. The views of bacteriologists amounted to a general consensus of opinion that books might be a means of conveying infection, but there was an equally general opinion that books rarely conveyed infection. Few experiments had been made under the essential conditions of a true test. Most of them had been performed on artificially cultivated germs, which developed greater powers of resistance than germs coming direct from the human body. For the purposes of a true test a patient should be made to infect a book. In his own recent experiments he had pursued that course. The disease which he had selected was consumption; and the books were from two public libraries and from a sanatorium, and in all cases were used by consumptive patients. The methods of infection were of three kinds, namely, coughing on a book, reading aloud with the lips near the book, and smearing or damping the corners of pages after the manner of persons who wet their thumbs to turn the leaves. With the first two methods a number of guinea-pigs were inoculated, but negative results were obtained in every instance. When, however, the guinea-pigs were inoculated with germs obtained from the sputum used on the wetted corners of leaves, microscopic examination of the tissues of the animals proved the existence of the disease. In another series of experiments a book which was infected by the coughing of an infirmary patient was employed for inoculating six guinea-pigs, but only one was infected. None of these experiments was entirely satisfactory. For instance, the wetted pages were more heavily smeared than they would be in actual practice on the part of the book-readers, and the experiments were being repeated under conditions more nearly approximating to those of ordinary experience. Then, again, there was the important fact that the dosage which would be sufficient to infect a guinea-pig would not have the same effect on a human being. Another series of tests related to the effects of disinfection. These produced varying results. Dr. Kenwood had obtained positive evidence of the persistence of infection after books had been disinfected by the methods ordinarily employed, but when moist heat was employed the germs were destroyed, and this was the method which he recommended.

### Tropical Sanitation and Hygiene

The London School of Tropical Medicine has decided to start a special course in tropical sanitation and hygiene. It is proposed to hold two courses annually, commencing May 1 and October 1, each extending over a period of eight weeks. Hygiene and public health in the tropics, port hygiene, the care of the sick on board ship in the tropics, surveying and sanitary engineering, bacteriology, protozoology, helminthology and medical entomology will all be treated by experts. Practical demonstrations will also be given, the general desire of the committee of the school being to make the course as practical as possible, and not to let theory play too great a part. The course is the application of the results of much laborious and painstaking research in the laboratories. Manson and Ross' scientific work on malaria led the way and showed how this common source of illness and death can be stamped out. This in turn led to the abolition of yellow fever in Cuba and the West Indies and made the Panama Canal possible. Bruce's researches on undulant fever have resulted in the abolition of that disease from the navy and army in Malta.

### Scarlet Fever and Fleas

In the annual report of the school medical officer to the London county council, an interesting observation is made suggesting that scarlet fever may be a flea-borne disease. From the beginning of 1909 onward, attempts have been made to obtain a detailed record of the seasonal prevalence of fleas in London. Until last year the inquiry was limited to observation of flea prevalence as affecting persons of the common lodging-house class. At the end of last year, however, it was possible to secure the additional information on the subject made available by the examination of pupils of elementary schools. The results have been published in the form of graphic charts, all of which show a great increase of fleas during late summer and autumn and a rapid decrease toward the end of the year. The curious feature of these records is that the curve obtained in respect to flea prevalence is almost identical with that of the incidence of scarlet fever in London.

## BERLIN LETTER

BERLIN, March 24, 1914.

In the interval which has elapsed since publication of the last Berlin letter a considerable number of important events have occurred, the most important of which will be reviewed.

### Personal

The first to notice is the sixtieth birthday of two of our most prominent scientists, Ehrlich and Behring. The former was born on the 14th, the latter on the 15th of March. While with Germany as with the rest of the civilized world, the seventieth birthday is commonly the occasion of public honor, there was good reason in the case of such noted investigators to make an exception and to give expression to the general esteem and gratitude of their contemporaries on their sixtieth anniversary. In fact there is no doubt that the greatest therapeutic progress of the present age has been achieved by these twin sons of science and humanity. Diphtheria antitoxin which met many opponents in the first decade after its discovery is regarded to-day as ineffective only by a few. With the discovery of this remedy alone Behring earned his claim to genius and the right to be classed with Jenner among the greatest benefactors of humanity. Moreover, his other labors on tetanus antitoxin, tuberculosis serum, etc., although they have not secured by any means, as brilliant results as the diphtheria antitoxin, are marked scientific achievements which have enriched the investigation of serotherapy.

Ehrlich cannot show as great and undisputed achievements, but his important cooperation with the work of Behring in making the diphtheria remedy useful in practice, his recommendation of methylene blue in malaria, one of the first products of his chemical therapeutic studies, and a number of similar discoveries terminating in salvarsan, have given him a place among those great minds to whom science and medical practice owe lasting progress. This recognition also received expression at the celebration of his birthday. Among other things, Behring was made an honorary citizen of Marburg where, as is well known, he has been acting as professor of hygiene for nearly two decades. Ehrlich received from the dermatologists a complimentary address in which they expressed their gratitude for the discovery of salvarsan.

February 4, the senior of the German medical profession, Friedrich Körte (the father of the noted surgeon), died at Berlin at the age of 96. He rendered marked service in the economic crises of the medical profession and, in addition to this, was highly esteemed by all German physicians on account of his excellent character.

February 12, the director of the Breslau Pharmacologic Institute, Professor Filehne, celebrated his seventieth birthday and on the 16th, the noted naturalist, Ernest Haeckel, of Jena, celebrated his eightieth birthday.

February 18, Professor von Hippel, of Giessen, celebrated the semi-centennial of his doctorate.

Professor Nietner, general secretary of the German Central Committee for the campaign against tuberculosis, died February 12. He devoted himself to the organization of the German Central Committee and has also produced some excellent articles on the campaign against tuberculosis of the lungs. In 1907 he was general secretary of the International Congress of Hygiene at Berlin, which was lauded by all the participants for its excellent organization. He was also a co-editor of the *Zeitschrift für Tuberkulose.*

In the last-named position he has been succeeded by the well-known investigator of tuberculosis, Prof. Lydia Rabinowitsch-Kemper. She was the first woman editor of a German medical journal.

February 28, Professor Joachimsthal, director of the University Policlinic, died at Berlin. He was a pupil of the distinguished orthopedist, Julius Wolff. He became the assistant of Wolff, who was his uncle, after passing the state examination. In 1898 he joined the faculty of the Berlin University. In 1902 he was granted the title of "professor" and, after the death of Hoffa, he was made director of the University Orthopedic Policlinic. He has published a great number of excellent scientific articles. In 1897 he was awarded the Pourat prize by the Paris Academy of Science for his essay on the "functional changes in the shape of muscles." He studied on animals the physiologic effect of orthopedic measures and made a number of contributions to the treatment of the congenital dislocation of the hip-joint by which he improved the Lorenz method.

Among his larger works, should also be noticed his articles on congenital deformities of the extremities. He published a large "Handbush der orthopaedischen Chirurgie" and, after the death of Hoffa, he became the editor of the *Zeitschrift für orthopaedische Chirurgie.* He was president of the Deutsche Gesellschaft für orthopaedische Chirurgie.

The orthopedic surgeon, Professor Ludloff, received early in March, a call to the university at Frankfort-on-the-Main, which will be opened the first of October of this year, in all probability.

Professor Kraus of Marburg has been appointed director of the eye clinic at the academy of practical medicine at Düsseldorf, following the death of Professor Pfalz.

Dr. R. L. Müller, a brother of the distinguished Munich clinician, has been called to Würzburg as the director of the University Policlinic for internal medicine in place of Professor Matterstock. Dr. Müller has been heretofore in charge of a department of the municipal hospital at Augsburg.

March 12, the former director of the Berlin University gynecologic clinic, Professor von Olshausen, celebrated the fiftieth anniversary of his professorship.

### Fatal Results with Friedmann Vaccine

Professor Vulpius, professor of orthopedics at the University of Heidelberg, together with Privat-docent, Dr. Laubenheimer, assistant at the Heidelberg Hygienic Institute, published an article in Number 10 of the *Deutsche med. Wochenschrift*, in which they reported a fatal case which presented symptoms of sepsis following the intravenous injection of Friedmann's remedy. (Abstract 139, p. 1206.) Naturally this publication aroused interest. It may well cause practicing physicians to exercise caution in the use of the remedy. Friedmann did not wait long before opposing the threatened injury to his remedy with the help of the daily press, the confidence of which he enjoys so fully.

A statement in which he protested against the publication of the article by Vulpius and Laubenheimer, was printed in a number of daily papers, by the news bureau, with an introduction to the effect that it had been given to the *Deutsche med. Wochenschrift*. It did not appear in this journal, however. It would seem, then, that the close relations of Friedmann with the daily press, which had been suspected on account of his wide-spread advertisements soon after his first address, were established with certainty. In addition, Professor Vulpius, in the article referred to, reported that in forty patients whom he had treated with Friedmann's remedy, he had noticed no changes which he could attribute to the remedy itself, although, as he adds, the time of observation is still too short for a decisive opinion.

However, Professor Brauer, the well-known director of the Eppendorf hospital at Hamburg, at the congress of balneology, also gave an account of unfavorable results which he had had in the application of Friedmann's remedy. On this account he has given up the continuation of his therapeutic tests. So far no further experiences with the Friedmann remedy in Germany have been reported.

### A Movement Against Salvarsan

Still greater interest than that excited by the single case of Vulpius and Laubenheimer has been created in the public mind by an article by the Berlin dermatologist, Dr. Dreuw, against salvarsan. Dreuw, from a review of the literature and from communications which he obtained by a circular letter to dermatologists, claims that nearly three hundred deaths have resulted from injection of salvarsan and, in addition, a series of other severe injuries, particularly cases of blindness. On the basis of this determination, he demands from the government at least an exact limitation of the maximum dose of salvarsan and, if possible, a prohibition of the further use of so dangerous a remedy. This publication was sent out widely by a news bureau to the public press and naturally produced great alarm among the public because Dreuw, from his position as police department physician for prostitutes, gave the impression that he was an official. His reference to an interview which he had had some time before with the president of the imperial health office on this subject, gave further the impression that the president agreed with his course. Naturally, the press, friendly to Dr. Dreuw, especially the anti-Semitic press, took up the agitation against salvarsan, and made it its aim to make the public believe that the use of salvarsan was attended with the greatest danger. Not only the reputable newspapers but also the government opposed this agitation. The government was given opportunity for expression of an opinion through an interpellation addressed to the imperial chancellor by a medical member of the Reichstag. In the Reichstag, March 6, a representative of the government made an official reply in the name of the imperial chancellor: (The appeal and the reply were given in The Journal, April 4, p. 1105.)

The effect of this official statement was strengthened by an extensive discussion on the treatment of syphilis which took place a few weeks ago in the Berlin Medical Society, following reports by Professor Lesser and Wechselmann. This discussion had been planned a long time before Dreuw's communication was published. While the conservative and unprejudiced speakers in this discussion refrained from exaggerated praise of salvarsan (which, unfortunately, was too much indulged in at the beginning of the salvarsan treatment) still the general verdict with regard to the remedy was thoroughly favorable, and it was recognized to a greater or less extent by all the speakers, that in salvarsan the treatment of secondary and tertiary syphilis had made an essential advance.

## BUDAPEST LETTER

Budapest, March 14, 1914.

### Combined Dispensaries for Alcoholics and Lung Patients

The Hungarian Antialcoholism League has begun action toward uniting the dispensaries for alcoholics and for lung patients, with a view to reaping the following advantages:

1. A given locality would be better served if separate hours were assigned for the two purposes.
2. The same attending physicians could be employed for the institutions.
3. The systematic family care of the tuberculous patients would be more successful through being carried on in conjunction with the alcoholic work.
4. The misery of the alcoholic family, its suffering, privations, bad food, unhealthful living and the overworking of the women and children often lead to tuberculosis, which could be effectively combated at the same time that alcoholism was being worked against.
5. A habitual drinker can be prevailed on to change his ways much more easily if he sees that the caretaking nurse deals also with other members of the family.
6. The mending of an alcoholic sometimes succeeds only if the nurse enlightens the drinker's wife in a corresponding manner.
7. The work of the caretaking women is well known to the magistrates and the leaders of the poverty committees, and therefore they obtain easier access to the alcoholic head of the family while he is at work. By reason of the direct observation of the families the nurses gain more experience.
9. Alcoholic and tuberculous families generally live near each other and thus the nurse loses little time in visiting both kinds of families.

### The Regulation of Public Bars

It has been the custom in Hungary for bars to remain open the whole night, even on Sundays, and in most places barmaids are employed to serve the guests. Both these points have been severely criticized lately in *Antialcoholismus*, the official paper of the "Good Templar" branch. The articles, were republished in the newspapers, with the result that about thirty members of parliament are proposing a new bill for the regulation of public bars. The chief purposes of the new bill are the prohibition of female service after a certain hour in the night, and the closing of bars on Sundays.

### The International Office to be Organized for the Unification of the Pharmacopeias

The Austro-Hungarian common foreign secretary has written to the Hungarian government asking it to support morally and materially the establishment of an international secretarial office for the purpose of unifying the pharmacopeias. In 1896 the Austrian, Danish, Spanish, Italian, Luxembourg, Holland, Norwegian, Russian and Swiss governments adopted the plan, but the Hungarian government has held back. The Belgium government believes that the time is ripe for other countries, including Hungary, to cooperate. According to the tentative plan, each government would contribute 2,000 francs ($400) toward the maintenance of the office, the task of which would be to study according to the progress of science the unity of production and composition of efficacious medicines in the different pharmacopeias, that is to say to continue and to extend that work which was done by the international conference at Brussels in 1902, and to prepare the program of a newer conference. The seat of the international office would be Brussels, and it would be controlled by a committee which would be composed of the delegates of the different states partaking in the maintenance of the office.

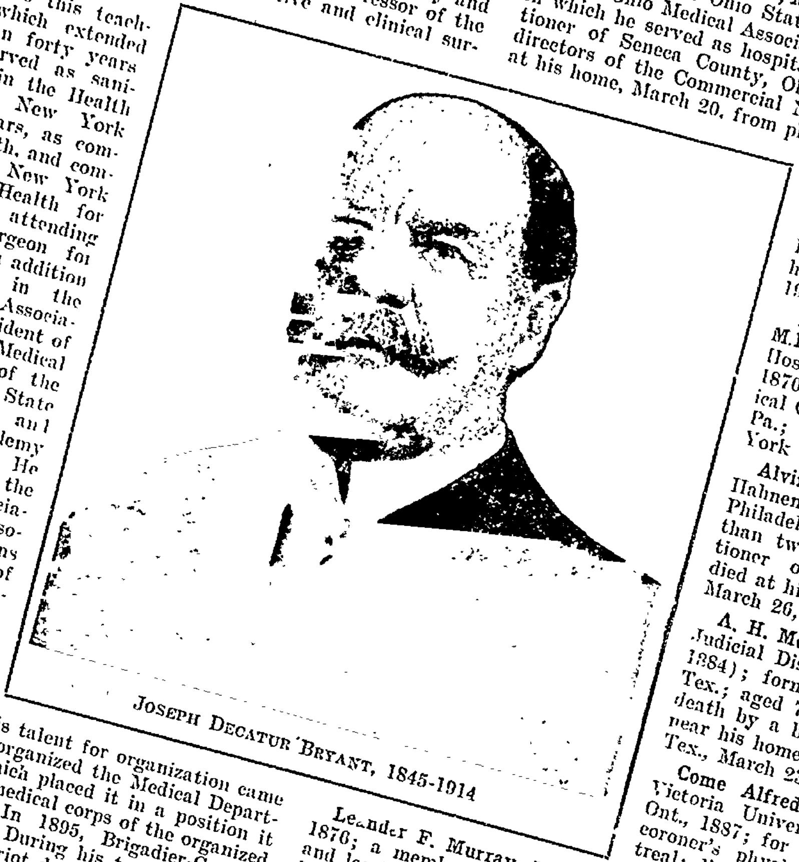
The Hungarian Public Health Board had a meeting some days ago, and the president, Prof. Arpád de Bokay, has proposed (this having been accepted by the board unanimously) that Hungary shall definitely accede to the establishing of the office, and that the board shall appoint a delegate who shall go to the new conference, and shall be authorized to sign any understanding which he may deem proper.

## Deaths

**Joseph Decatur Bryant, M.D.,** of wide renown as a surgeon, the Nestor of the faculty of Bellevue Hospital Medical College, president of the American Medical Association in 1907 and 1908, Surgeon-General of the National Guard, State of New York, from 1882 to 1894, died in St. Vincent's Hospital, New York City, April 7, from diabetes, aged 69.

He was born in East Troy, Walworth County, Wis., March 12, 1845, the son of Alonzo A. and Harriet (Atkins) Bryant. His preparatory collegiate work was done at the Norwich (N. Y.) Academy, after which he entered Bellevue Hospital Medical College, New York City, graduating in 1868. After his internship in Bellevue Hospital, he became assistant to the chair of anatomy in his Alma Mater in 1871, and then passed through the teaching positions of lecturer on surgical anatomy, assistant demonstrator of anatomy, professor of general, descriptive and surgical anatomy, professor of anatomy and clinical surgery, and associate professor of orthopedic surgery until 1898, when at the merger of the University and Bellevue Hospital Medical colleges he became professor of the principles and practice of surgery, operative and clinical surgery, holding this position until his death.

In addition to this teaching service, which extended over more than forty years Dr. Bryant served as sanitary inspector in the Health Department of New York City for six years, as commissioner of health, and commissioner of the New York State Board of Health for six years, and as attending and consulting surgeon for many hospitals. In addition to his Fellowship in the American Medical Association, he served as president of the New York State Medical Association in 1898; of the Medical Society of the State of New York in 1906, and of the New York Academy of Medicine in 1895. He was also a fellow of the American Surgical Association, a member of the Association of Military Surgeons of the United States and of many other scientific organizations.



JOSEPH DECATUR BRYANT, 1845-1914

In 1873, he was appointed surgeon of the Seventy-First Infantry, N. G., S. N. Y., and nine years later was made surgeon-general of the state. His talent for organization came into play here in 1882, when he organized the Medical Department of the Guard on a basis which placed it in a position it still retains, foremost among the medical corps of the organized militia of the United States. In 1895, Brigadier-General Bryant resigned from the guard. During his term of service he passed through many tours of riot duty.

He was an author of note, and his work on Operative Surgery, which has passed through four editions, is one of our best text-books. He was co-author with Buck of the eight-volume American System of Surgery, and was also a frequent and valuable contributor to surgical literature.

He was the family physician and warm personal friend of President Cleveland, and was his close associate in his many travel and fishing trips.

Dr. Bryant had been ill for a long time with diabetes, but despite his disability, kept up his interest in professional and public affairs to the last.

**Theodore E. Courtright, M.D.** Starling Medical College, Columbus, Ohio, 1884; a Fellow of the American Medical Association; of Columbus, Ohio; died in St. Clair Hospital in that city, March 25; three days after a surgical operation for disease of the intestine, aged 53.

**Charles H. Neal, M.D.** Western Reserve University, Cleveland, 1883; a member of the Ohio State Medical Association; died at his home in Cardington, Ohio, February 23, aged 49.

**Oliver Kinsey, Jr., M.D.** Johns Hopkins University, Baltimore, 1911; of Kinsey, N. C.; resident physician at the Church Home and Infirmary, Baltimore; who had passed the examination for the Medical Corps of the Army, but resigned to take special work in diseases of the skin; was found dead in his room in Baltimore, March 24, from the effects of illuminating gas, believed to have been inhaled with suicidal intent, while despondent on account of ill-health, aged 28.

**John Thomas Shepherd, M.D.** University of Maryland, Baltimore, 1874; acting assistant surgeon, U. S. P. H. S. at Chattanooga, Tenn., from 1888 to 1911; physician to the Hamilton County Hospital, and formerly president of the Hamilton County Board of Health; a member of the Association of Military Surgeons of the United States; a Confederate veteran; died at his home in Chattanooga, Tenn., March 22, from valvular heart disease, aged 65.

**George Parker Williard, M.D.** Jefferson Medical College, 1867; a member of the Ohio State Medical Association, and Northwestern Ohio Medical Association; a veteran of the Civil War, in which he served as hospital steward; and the oldest practitioner of Seneca County, Ohio; a member of the board of directors of the Commercial National Bank, Tiffin, Ohio; died at his home, March 20, from pleuropneumonia, aged 68.

**James P. Moser, M.D.** Cincinnati College of Medicine and Surgery, 1876; secretary of the Tipton (Ind.) County Board of Health; died at his home in Windfall, Ind., March 19, from pneumonia, aged 64.

**Patrick Vincent Murray, M.D.** Long Island College Hospital, Brooklyn, N. Y., 1870; Bellevue Hospital Medical College, 1875; of Warren, Pa.; died suddenly in New York City, March 13.

**Alvin Isaac Miller, M.D.** Hahnemann Medical College, Philadelphia, 1872; for more than twenty years a practitioner of Harrisburg, Pa.; died at his home in that city, March 26, aged 64.

**A. H. Moore** (license, Sixth Judicial District Board, Tex., 1884); formerly of Bonham, Tex.; aged 72; was gored to death by a bull in a pasture near his home in San Angelo, Tex., March 23.

**Come Alfred Dugas, M.D.** Victoria University, Coburg, Ont., 1887; for twenty years coroner's physician of Montreal; died at his home in that city, January 7, aged 49.

**Leander F. Murray, M.D.** Louisville (Ky.) Medical College, 1876; a member of the Missouri State Medical Association; and local surgeon at Holden, Mo., for the Missouri-Pacific and Missouri, Kansas and Texas systems; a member of the board of trustees of the Nevada, Mo., State Hospital; died at his home in Holden, Mo., March 21, aged 66.

**Thomas James Moher, M.D.** Trinity Medical College, Toronto, 1889; formerly medical superintendent of the hospitals for the insane at Orillia and Brockville, Ont.; for the last three years superintendent of the Hospital for the Insane, Coburg, Ont.; died at his home in Coburg, February 25, aged 52.

**Daniel Wright Dimock, M.D.** Dartmouth Medical School, Hanover, N. H., 1867; formerly of Brockton, Mass., but for several years a resident of Sydney, N. S.; died at the home of his son in that place, January 5, aged 78.

**Levi Hall, M.D.** Hahnemann Medical College, Chicago, 1882; formerly a clergyman of the Methodist Episcopal Church; died at his home in Minneapolis, Minn., March 22, from cerebral hemorrhage, aged 80.

**Oliver Henry Sterner, M.D.** Jefferson Medical College, 1880; a practitioner and druggist of Frankford, Philadelphia; died at his home, March 28, from pneumonia, aged 55.

**William R. Nash, M.D.** Indiana Medical College, Indianapolis, 1877; formerly of Brownsburg, Ind.; died recently at his home in Fairmount, Ill., aged 72.

**Charles A. Kreutzer, M.D.** Detroit (Mich.) College of Medicine, 1897; a Fellow of the American Medical Association; professor of gynecology in Marquette University, Milwaukee; visiting gynecologist to the Milwaukee County Hospital, the County Hospital for the Insane and St. Joseph's Hospital, Milwaukee; a charter member of the Surgical Society of the State of Wisconsin; died at his home in that city, March 29, aged 42.

**Archibald James Sinclair, M.D.** Trinity Medical College, Toronto, 1875; for twenty-five years surgeon of the Grand Trunk system at Paris, Ont.; and for several years a member of the medical staff of the Ontario School for the Blind, Brantford; died at his home in Paris, Ont., March 22.

**Marvin M. Johnson, M.D.** Medical College of Georgia, Augusta, 1902; a Fellow of the American Medical Association; president of the Ware County (Ga.) Medical Society; for several years physician of Ware County; died at his office in Waycross, Ga., March 21, from rheumatic endocarditis, aged 34.

**William H. Parker, M.D.** University of Buffalo (N. Y.), 1881; a Fellow of the American Medical Association; for seven years health officer of Santa Monica, Cal.; who was run down by an automobile, March 19, died in St. Catherine's Hospital, Santa Monica, from his injuries, March 20, aged 59.

**Henry Stephen Smith, M.D.** Detroit College of Medicine, 1911; D.V.S., Ontario Veterinary College, 1889; formerly a member of the staff of the state veterinarian of Michigan; a practitioner of Detroit; died in Providence Hospital in that city, March 21, from pneumonia, aged 49.

**James N. Long** (license, Texas, 1873); a Confederate veteran; for nearly sixty years a practitioner of Bee County, Texas; died at his home in Beeville, March 12, from influenza, aged 83.

**John W. Getzendanner** (license, Md.); a practitioner since 1870; of Myersville; died at the home of his daughter near Middletown, Md., March 11, from cerebral hemorrhage.

**John Douglass West** (license, Ohio, 1896); a practitioner since 1861; a member of the Ohio State Medical Association; died at his home in Hopedale, March 15, aged 87.

**Thomas J. Dower, M.D.** University of Iowa, Iowa City, 1896; a member of the Iowa State Medical Association; of Fonda; died in Excelsior Springs, Mo., March 3, aged 47.

**Ernest J. Schenck** (license, years of practice, Illinois 1883); a practitioner of Princeton, Ill., since 1858; died at his home March 15, from heart disease, aged 83.

**Theodore Rogers Waugh, M.D.** Hahnemann Medical College, Philadelphia, 1872; of St. Alban's. Vt.; died in a sanatorium in Burlington, Vt., March 17, aged 67.

**Alvin Henri Wright, M.D.** University of Vermont, Burlington, 1890; of San Francisco; died in the City and County Hospital in that city, March 13, aged 46.

**Francis Marion Carr** (license, Ind., 1897); a practitioner since 1855; died at his home in New Market, Ind., March 18, from senile debility, aged 83.

**Clinton E. Thompson, M.D.** Denver College of Physicians and Surgeons, 1899; died at his home in Denver, March 11, from cerebral hemorrhage, aged 51.

**Channing H. Cook, M.D.** Cooper Medical College, San Francisco, 1887; died at his home in San Francisco, March 6, from tuberculosis, aged 53.

**Charles Hebard, M.D.** Bellevue Hospital Medical College, 1865; died at his home in Mondovi, Wis., March 3, from heart disease, aged 76.

**James A. Cole, M.D.** College of Physicians and Surgeons, Baltimore, Md., 1886; died at his home in Timmonsville, S. C., March 11.

**Thomas Lee, M.D.** University of Pennsylvania, Philadelphia, 1876; died at his home in Camden, N. J., March 24, aged 72.

## Marriages

Earl Linwood Parmenter, M.D., Mineral, Kan., to Miss Hilda Brand of Chicago, at Kansas City, Mo., recently.

Eugene Gorham Hoitt, M.D., Marlboro, Mass., to Miss Gladys Hoitt of Vancouver, B. C., March 27.

Harry Nicholas Sutherland, M.D., to Miss Doris Knutson, both of Ely, Minn., March 28.

Samuel H. Miller, M.D., to Miss Ella Boyd, both of Joplin, Mo., March 25.

## The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

### WINE OF CARDUI

### A Pillar of the Church and His "Patent-Medicine" Tipple

Wine of Cardui is one of those preparations that have more or less vogue among women who take their "booze" in the form of "patent medicine" instead of whiskey. It is made and sold by the Chattanooga Medicine Company, this company being owned by John A. Patten and Z. C. Patten, Jr. The Chattanooga Medicine Company previous to 1909 was a corporation, largely owned by the two Pattens. In that year the company gave up its charter of incorporation in order to avoid the tax put on corporations at that time.

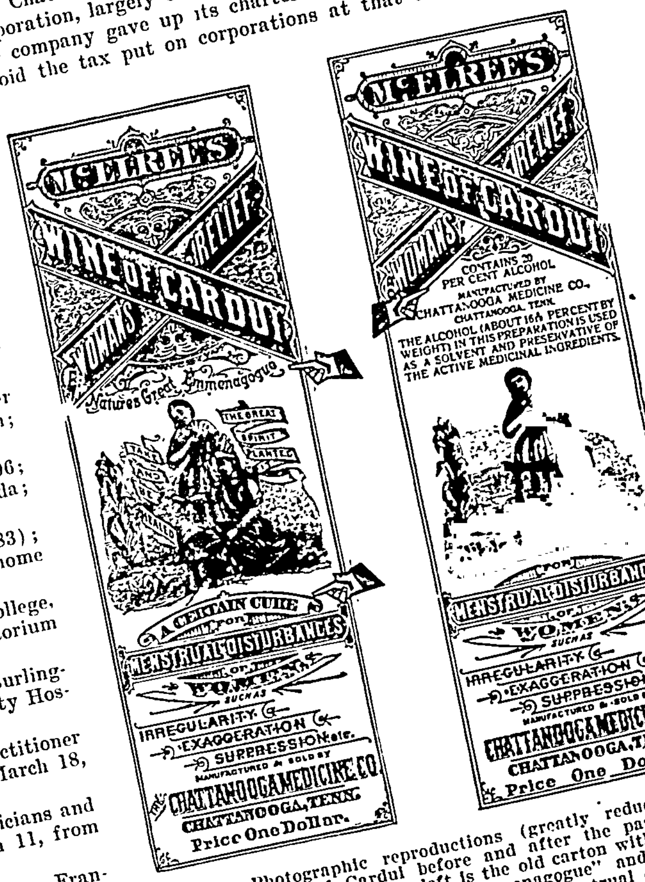

McELREE'S
WINE OF CARDUI
WOMAN'S RELIEF
Nature's Great Emmenagogue
A CERTAIN CURE FOR MENSTRUAL DISTURBANCES OF WOMEN SUCH AS
IRREGULARITY
EXAGGERATION
SUPPRESSION etc.
MANUFACTURED & SOLD BY
THE CHATTANOOGA MEDICINE CO.
CHATTANOOGA, TENN.
Price One Dollar.
McELREE'S
WINE OF CARDUI
WOMAN'S RELIEF
CONTAINS 20 PER CENT ALCOHOL
MANUFACTURED BY CHATTANOOGA MEDICINE CO. CHATTANOOGA, TENN.
THE ALCOHOL (ABOUT 16% PERCENT BY WEIGHT) IN THIS PREPARATION IS USED AS A SOLVENT AND PRESERVATIVE OF THE ACTIVE MEDICINAL INGREDIENTS.
FOR MENSTRUAL DISTURBANCES OF WOMEN SUCH AS
IRREGULARITY
EXAGGERATION
SUPPRESSION etc.
MANUFACTURED & SOLD BY
CHATTANOOGA MEDICINE CO.
CHATTANOOGA, TENN.
Price One Dollar.

Fig. 1.—Photographic reproductions (greatly reduced) of the cartons of Wine of Cardui before and after the passage of the Food and Drugs Act. At the left is the old carton with the fraudulent statement "Nature's Great Emmenagogue" and the equally fraudulent statement "A certain cure for menstrual disturbances." Neither of these statements appear on the present carton, but in place of them is the enlightening information "Contains 20 per cent. alcohol."

John A. Patten, who is understood to own the greater part of this "patent medicine" concern, is one of the most prominent laymen in the Methodist Episcopal Church organization. According to the Methodist Year Book for 1914, he holds positions on the following:

*Book Committee*, chairman.

*Freedman's Aid Society*, member of the board of laymen.

*Board of Education*, member of the Board of Managers.

*Methodist Brotherhood*, representative of General Conference District 6.

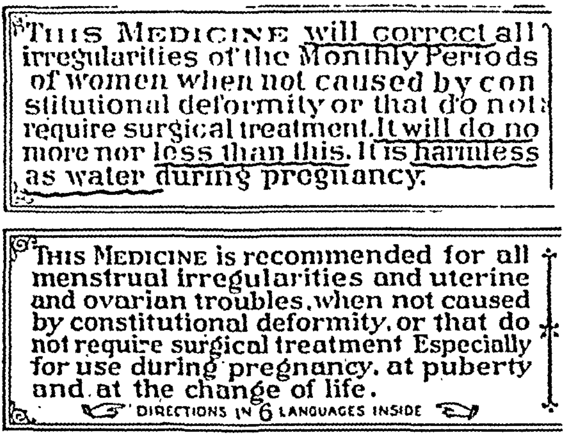
*Commission on Federation*, member.

*Executive Committee of Laymen's Associations*, member at large.

*Methodist Men's Convention*, member of Committee on Policy.

By far the most important of these position is his chairmanship of the Book Committee. According to the Methodist Year Book, the Book Committee "is one of the most important bodies created by the General Conference, being almost a General Conference *ad interim*." This committee:

Fixes the salaries of the bishops, publishing agents and all official editors; has general supervision of the publishing interests of the church; may discontinue any depository or periodical; may order expenses curtailed in any department of the Book Concern; elects the book editor; controls the purchase, sale or exchange of real estate by the Book Concern; may remove from office a publishing agent or editor; declares the amount of the dividend of the Book Concern to be distributed among the conferences.



This Medicine will correct all irregularities of the Monthly Periods of women when not caused by constitutional deformity or that do not require surgical treatment. It will do no more nor less than this. It is harmless as water during pregnancy.

This Medicine is recommended for all menstrual irregularities and uterine and ovarian troubles, when not caused by constitutional deformity, or that do not require surgical treatment Especially for use during pregnancy, at puberty and at the change of life.

DIRECTIONS IN 6 LANGUAGES INSIDE

Fig. 2.—Photographic reproductions (reduced) of parts of the old (upper) and new (lower) cartons. Notice that the direct falsehoods of the old carton have given place to the inferential falsehoods of the new. Cardui no longer "will correct" all irregularities, but is now "recommended" for these irregularities. The vicious falsehood that Wine of Cardui "is harmless as water" has been deleted.

Before passing to a consideration of the Wine of Cardui itself, it is worth noting that Mr. Patten, as one of the Committee on Policy appointed during the Methodist Men's Convention, reported that the convention committed itself "with heartiness and devotion to the well-known attitude of the church on the subject of temperance. . . ."

### CARDUI ADVERTISING

A few years ago the advertising of Wine of Cardui was distinguished by its bold indecency. This, for example, from a two-column advertisement, entitled "Why Women Fear to Grow Old":

> "What a husband needs, is a well-SEXED woman—a woman with health, strength, capacity for sharing with him, in a womanly way, life's duties, responsibilities and enjoyments."
>
> "A well-sexed woman wins success, also—in business, literary or social life—where the weak-sexed one fails."
>
> "Are you a victim to any of the many forms of disease peculiar to women, which prevents you from tasting to the full the enjoyment and happiness that is due you?"

Referring to this phase of the Wine of Cardui business, Mr. Samuel Hopkins Adams, in his "Great American Fraud" series, discussing a Cardui advertisement entitled "What Men Like in a Girl," said: "For loathesome and gratuitous indecency, for leering appeal to the basest passions, this advertisement and the others of the Wine of Cardui series sound the depths."

### MR. PATTEN DEFENDS THE NOSTRUM BUSINESS

At the time the public was being awakened to the more serious evils of the "patent-medicine" traffic, Mr. Patten, as "fraternal representative from the Proprietary Association of America"—the "patent medicine" organization—spoke before the twentieth annual convention of the Tennessee State Pharmaceutical Association. Mr. Patten defended the "patent medicine" business, and, in common with his kind, protested against the "attacks on the manufacturers of proprietary medicines." Mr. Patten's argument was that self-interest alone on the part of "patent medicine" manufacturers insured meritorious and safe remedies!

"However unscrupulous," said Mr. Patten, referring to the "patent medicine" manufacturer, "he may be at heart, commonsense teaches that only as he produces an article that will 'repeat'—which will meet the needs of the people who buy—can he reach success."

This, from a gentleman who was selling to unsuspecting women an alcoholic "tonic" under the claim that it was non-intoxicating! Wine of Cardui is, doubtless, a good "repeater." So is whiskey.

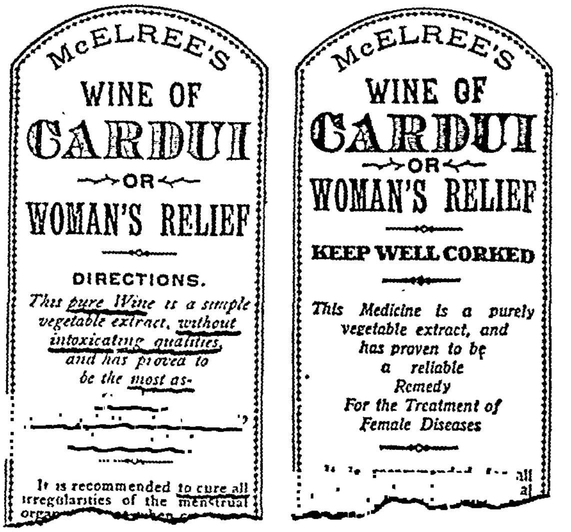
Mr. Patten's address, defending "patent medicines," although long, was widely copied by the newspapers of the country, and some editors went so far as to discuss the matter editorially. Whether this wide dissemination of pro-nostrum matter was the result of purchased news space by the Proprietary Association for the purpose of molding public opinion through advertisements printed as news-matter, or whether the matter was reprinted because the newspapers, as general beneficiaries of the "patent medicine" industry, recognized the *quid pro quo*, it is impossible to say.

### THE WOMAN'S TONIC

Wine of Cardui, according to its manufacturers, is "the woman's tonic." It is apparently recommended for practically all the ills that woman is heir to. Before the Food and Drugs Act made lying expensive, instead of merely immoral, the label of Mr. Patten's product bore such outrageous falsehoods as:

> "A certain cure for menstrual disturbances of women, such as irregularity, exaggeration, suppression, etc."
>
> "It is harmless as water during pregnancy."
>
> "Nature's Great Emmenagogue."
>
> "Without intoxicating qualities."
>
> "The most astonishing Tonic for Women known to Medical Science."

No such crude lies as these appear now on the carton or label of Wine of Cardui, for Mr. Patten, in common with many other nostrum exploiters, appreciates the value of truthfulness—when it becomes a legal necessity. To-day, because the law demands it, Mr. Patten's medicine bears the statement: "Contains 20 per cent. alcohol." Yet in 1905 Mr. Patten, in his widely disseminated address, inveighed against the suggestion made by thinking people that the percentage of alcohol in "patent medicine" should be declared. And this "tonic," containing twice as much alcohol as champagne was



McELREE'S
WINE OF
CARDUI
OR
WOMAN'S RELIEF

DIRECTIONS.

This pure Wine is a simple vegetable extract, without intoxicating qualities, and has proved to be the most as-

It is recommended to cure all irregularities of the menstrual orga

McELREE'S
WINE OF
CARDUI
OR
WOMAN'S RELIEF

KEEP WELL CORKED

This Medicine is a purely vegetable extract, and has proven to be a reliable Remedy For the Treatment of Female Diseases

all
al

Fig. 3.—Parts of the old (left) and new (right) labels. As Wine of Cardui is not a "pure wine" and as it is not the "most astonishing tonic for women known to medical science" these statements no longer appear on the label. As the bottle has to confess to the presence of 20 per cent. alcohol, the pillar of the Methodist Episcopal Church who manufactures this stuff dares not now claim that his "booze" is "without intoxicating qualities." But the claim was made before there was a penalty attached to lying!

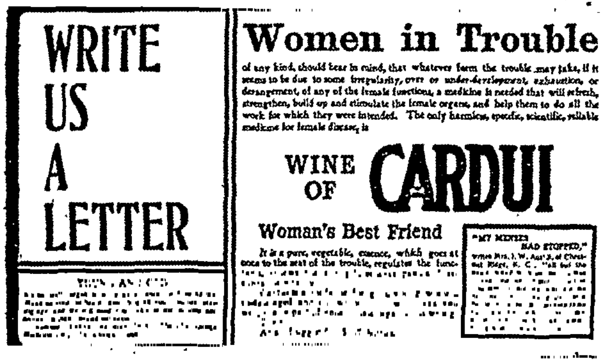
sold under the claim that it was "without intoxicating qualities!"

"I claim," said the representative of the Methodist Brotherhood, "to be a sincere advocate of temperance, but you gentlemen know and I know what a base attempt has been made in this direction to play on the prejudices of the ignorant."

### THE ADVERTISERS' CLUB OVER LEGISLATORS

During the summer of 1912, *Collier's* called attention to a letter said to have been sent by the advertising counsel of the Chattanooga Medicine Company to a newspaper in New Mexico. A bill had been introduced in the state legislature of New Mexico. Its aim was to supplement the federal Food and Drugs Act by prohibiting curative claims. According to *Collier's* the letter from the Wine of Cardui concern gave the name of the man introducing the bill with the name of the committee that was to pass on it. Then, in red letters, was this clause:

> "This will, of course, stop all advertising of proprietary medicines in New Mexico."



WRITE US A LETTER

Women in Trouble

of any kind, should bear in mind, that whatever form the trouble may take, if it seems to be due to some irregularity, over or under-development, exhaustion, or derangement, of any of the female functions, a medicine is needed that will refresh, strengthen, build up and stimulate the female organs, and help them to do all the work for which they were intended. The only harmless, specific, scientific, reliable medicine for female disease, is

WINE OF CARDUI

Woman's Best Friend

It is a pure, vegetable, essence, which goes at once to the seat of the trouble, regulates the func-

"MY MENSES HAD STOPPED,"

Fig. 4.—One of the older Wine of Cardui advertisements, greatly reduced.

The advertising counsel then asked: "Won't you please take this important matter up at once with your representative?" As *Collier's* said at the time, this piece of correspondence sounded like old times—"the combination between the patent medicine company with its millions to spend on advertising; the newspaper which wants the advertising and the legislator who wants the support of the newspaper."

### PRESENT CLAIMS FOR CARDUI

What is claimed for Wine of Cardui to-day? In the booklet sent out by the Chattanooga Medicine Company—but not with the bottle, so that its statements are not subject to the federal Food and Drugs Act—we read:

> "This is a pure, vegetable, curative, female tonic. It regulates fitful functions, relieves periodical pain, strengthens the female organs and builds up the female constitution."

And what will this marvelous nostrum not do? Should the breasts exhibit "lack of tone, shown by hanging breasts"—"it is time to take Cardui." In local diseases of the vulva, "frequently caused by want of cleanliness," but even when "caused by gonorrheal infection" "Cardui will exert marked beneficial effect upon this local irritation." "Nine out of every ten female invalids" according to the booklet, "have womb trouble," and Wine of Cardui, we are asked to believe, has "cured" the wombs of "over a million women" and "made them feel well all through." Should the womb be anteflexed, take Wine of Cardui; should it be retroflexed, also take Wine of Cardui; should there be prolapse or inversion, take Wine of Cardui. Have you suppressed menstruation or "flooding"—Cardui will cure it. The girl at puberty "needs care, patient attention, motherly advice and—Cardui."

"Every girl should take Cardui at the time of puberty. It can never do her anything but good." *Does the Chairman of* the Book Committee of the Methodist Episcopal Church, who is such a strong advocate of temperance, really believe his disguised "booze" is a good thing to give a young girl at the most impressionable period of her life? Does Mr. Patten really think that an alcoholic nostrum—far more insidiously dangerous than the ordinary form of alcoholic drink—is something that, given to the girl blossoming into womanhood, "can never do her anything but good"?

And to the married woman, Mr. Patten gives this advice:

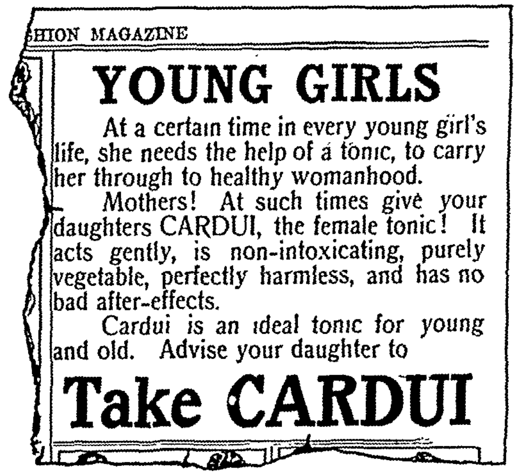
> "All newly married women should take Cardui. It will afford them a gentle, sustaining refreshment, soothe their nerves, tone up their organs and regulate all their functions."

The question has frequently been asked: "What is Wine of Cardui?" To answer it, the chemists of the laboratory of the American Medical Association were asked to analyze it. Here is their report:

### CHEMIST'S REPORT

The name Wine of Cardui would indicate that the preparation was made from blessed cardus (*Cnicus benedictus*) a plant variously known as blessed, cursed, spotted or bitter thistle. Wine of Cardui is a dark brownish liquid having a neutral reaction, a peculiar, valerian-like odor and a bitter, mawkish taste. The odor was not wine-like in any particular. The preparation is claimed to be purely vegetable and the presence of 20 per cent. of alcohol is declared. Arsenic, bromids, iodids, the potent alkaloids such as aconitin, morphin and strychnin, or the emodin-bearing drugs such as aloes, cascara and senna, were not found. Potassium bitartrate (cream of tartar) was absent, thus indicating the absence of wine from grapes. Alcohol was determined and 20.36 per cent. of absolute alcohol by volume was found. The volatile matter amounted to about 97 per cent. The nonvolatile residue appeared to consist of vegetable extractives. This had a bitter taste and gave very faint reactions for alkaloids. The quantity of alkaloid was too small to possess any appreciable medicinal effect, whatever its potency might be. Small quantities of a nitrate were present. Potassium nitrate is a constituent of a considerable number of plants, among which is blessed thistle. The presence of traces of this salt in Wine of Cardui does not, therefore, prove the presence of blessed thistle extractives in this preparation, although it is confirmatory evidence. A trace of combined ammonia also was present.

It is probable that Wine of Cardui is a weak, hydroalcoholic extract of blessed thistle, containing a trace of valerian. Blessed thistle has been employed to some extent in domestic medicine as a simple bitter, but little attention is given to it by discriminating writers in materia medica. It seems probable that whatever medicinal effect Wine of Cardui may possess, is due principally to its alcohol content."



HION MAGAZINE

YOUNG GIRLS

At a certain time in every young girl's life, she needs the help of a tonic, to carry her through to healthy womanhood.

Mothers! At such times give your daughters CARDUI, the female tonic! It acts gently, is non-intoxicating, purely vegetable, perfectly harmless, and has no bad after-effects.

Cardui is an ideal tonic for young and old. Advise your daughter to

Take CARDUI

Fig. 5.—One of Mr. Patten's advertisements to young girls in which he declares his "booze" is "non-intoxicating" and "perfectly harmless."

The chemist's report can briefly be summed up in the statement that Wine of Cardui is a "patent medicine" that contains 20 per cent. of alcohol and apparently very little else. In view of the chemist's findings, it would be interesting to know why the Commissioner of Internal Revenue has not listed Wine of Cardui among those alleged medicinal preparations that are "insufficiently medicated to render them unsuitable for use as a beverage," and thereby limited the selling of this preparation to those who have paid the retail liquor dealers' special tax!

Summed up, Wine of Cardui may be said to belong to what is known as the "bracer" class of nostrums—those that are taken largely for their alcoholic effect. There are few more insidiously dangerous "patent medicines" than those belonging to this class. By what sophistries does Mr. Patten, pillar of the Methodist Episcopal Church, square his religious principles with his business? The thousands of Methodists who are opposed, alike, both to the fraud in the "patent medicine" business itself, and also to the sale of alcoholics under the guise of women's tonics, have a right to demand of their organization an explanation of Mr. Patten's preferment. What is the secret of this man's power in their church? Is the Methodist Episcopal Church in need of tainted dollars fraudulently obtained from sickly women who innocently purchase a disguised tipple? So far as we know, not one of the official publications of the Methodist Episcopal Church will carry the advertisements of Wine of Cardui—the business is too dirty, too vicious, too fraudulent for their pages. Why then, does that church bestow on a man who makes his money through such a business, some of its highest honors and dignities?

# *Association News*

## PRELIMINARY ANNOUNCEMENT OF RAILROAD RATES FOR THE ATLANTIC CITY SESSION

The Committee on Transportation and Place of Session announces the rates of which it has been advised to date:

The Trunk Line Association has authorized a rate of 2 cents a mile in each direction with a minimum of $1 for the round trip, going and returning via same route only; tickets to be sold and good, going, June 20 to 22, and returning to reach the original starting-point not later than June 29.

The Western Passenger Association calls attention to the very favorable tourist fares to Atlantic City which will be available to persons desiring to attend the annual session. The general basis of these fares is 2 cents a mile in each direction up to the eastern gateway added to the fares tendered therefrom. These fares are on as liberal a basis as are made by the lines of the Western Passenger Association.

The Grand Trunk Railway System announces that it will have on sale June 1 daily up to and including September 30, round-trip, thirty-day excursion tickets to Atlantic City, also sixty-day circle tour tickets going via New York, returning via Philadelphia, Baltimore and Washington at the following rates:

Chicago to Atlantic City and return, $29.10, thirty-day limit.

Chicago to New York, returning via Philadelphia, Baltimore and Washington, $32.40, sixty-day limit.

On the thirty-day tickets, liberal stop-overs are allowed in the United States and all intermediate points in Canada. On the sixty-day tourist tickets, stop-overs are allowed at all intermediate points en route.

The Grand Trunk Railway System operates three solid vestibule trains leaving Chicago daily at 11:05 a. m., 3:30 p. m. and 11:05 p. m., carrying steel underframe coaches, steel Pullmans and dining-cars, electric lighted throughout. It will also have many other interesting summer trips on sale beginning June 1, including circle tours going one way and returning another.

This preliminary notice of fares is of necessity incomplete. Additional rates will be published as they are announced by the several passenger associations. Fellows contemplating attending the annual session should consult the local ticket agent in their home towns for full information regarding rates, time limits, extension and stop-over privileges. In subsequent reports, special trains which may be arranged for from various points will be noted.

## HOTELS ANNOUNCED AS HEADQUARTERS

The local Committee on Arrangements for the Atlantic City Session report the following hotels as headquarters:

| | |
|---|---|
| General Headquarters | Marlborough-Blenheim |
| Practice of Medicine | Hotel Dennis |
| Surgery | Hotel Chalfonte |
| Obstetrics, Gynecology and Abdominal Surgery | Haddon Hall |
| Ophthalmology | Hotel Traymore |
| Laryngology, Otology and Rhinology | Hotel Brighton |
| Diseases of Children | Seaside House |
| Pharmacology and Therapeutics | Hotel Dennis |
| Pathology and Physiology | Shelburne |
| Stomatology | Alamac |
| Nervous and Mental Diseases | Hotel Brighton |
| Dermatology | Seaside House |
| Preventive Medicine and Public Health | Shelburne |
| Genito-Urinary Diseases | Alamac |
| Hospitals | Marlborough-Blenheim |
| Orthopedic Surgery | Hotel Chalfonte |

# *Correspondence*

## Painless Parturition

*To the Editor:*—In the whole realm of science no other field presents such a crying need for the use of the modern anesthetic as that of parturition. For this class of suffering nitrous oxid is particularly well adapted. The subconscious and unconscious states rapidly follow its inhalation; likewise consciousness returns quickly after its inhalation is discontinued. This permits of its entire discontinuance between "pains" with the patient completely conscious, and its administration only just prior to and during the contractions. Furthermore, and this is a very important difference from the action of ether and chloroform, used in this manner, nitrous oxid does not interfere with the contractions of the uterus; the progress of labor is natural, yet the "pains" are painless.

The pain and suffering of the parturient woman produce exhaustion, that is, shock. Nitrous oxid, in a very large measure and to a much greater extent than the usual anesthetics, protects against shock, so that, with its use, not only is the suffering prevented, but also the physical condition of the patient is decidedly better. With the patient's vitality conserved, the contractions of the uterus are stronger and, therefore, nitrous oxid aids and facilitates the progress of labor.

The parturient and puerperal patient is particularly prone to pathologic processes, as resistance is low. Nitrous oxid conserves the patient's resistance in general (Crile: The Results of Operations, Especially Abdominal, Performed on the Principle of Anoci-Association, THE JOURNAL, July 13, 1912, p. 114), and against infection specifically (Crile: An Experimental and Clinical Research into Nitrous Oxid versus Ether Anesthesia, *South. Med. Jour.*, January, 1910). Besides, in such patients, the disintoxicating and eliminating organs—the thyroid, parathyroids, adrenals, liver and kidneys—are already overtaxed. Nitrous oxid, therefore, is the rational and scientific anesthetic for the obstetrician (Coburn: The Selection of the Anesthetic on the Basis of its Ultimate Physiology, *Surg., Gynec. and Obst.*, December, 1913). With its use, not only is parturition painless, but the patient's vitality and resistance are thereby conserved, and much of the onerous burden and danger removed from the parturient chamber.

RAYMOND C. COBURN, M.D., New York.

**Hasty Publication.**—William Harvey had demonstrated his ideas of the circulation for twelve years before publishing them; between the first draft and final publication of the "Origin of Species," seventeen years were allowed to pass; yet to-day men *rush* into print with ideas that are pigmy-like compared with these magnificent conceptions.

# Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### VARIATIONS IN DIFFERENT BRANDS OF ETHER

*To the Editor:*—1. An anesthetist finds that a certain brand of ether seems to require very much more to produce anesthesia than a brand previously used. What possible difference in two brands of ether may account for this?

2. What chemical differences are to be expected in the standard brands of ether now on the market? W. E. C.

ANSWER.—1. The anesthetic strength of ether might be influenced by the presence of water or alcohol. It is unlikely that any ether sold for anesthetic purposes contains enough of either of these impurities to affect materially its anesthetic activity. The Pharmacopeia gives directions for detecting an undue amount of alcohol or water which can be easily applied. It is probable that any differences in effect observed are due to the mode of administration.

2. There is no reason to expect more than minute differences in the chemical composition of the standard brands of ether on the market. Depending on the method of preparation various impurities may be present, but these are usually removed, so that the standard brands are of good quality.

### BOOKS ON FIRST AID

*To the Editor:*—I have been asked to name some book suitable for laymen, covering the ordinary emergency and first-aid subjects. Can you tell me of such a one?

C. T. CADWELL, M.D., Poughkeepsie, N. Y.

ANSWER.—The following is a list of references to recent publications on this subject:

Lynch, Charles: American Red Cross Abridged Text-Book on First Aid, Woman's Edition, Railroad Edition, Miner's Edition and Police and Fireman's Edition, Philadelphia, P. Blakiston's Son & Co., 1913, each 30 cents.

Doty, Alvah, H.: A Manual of Instruction in the Principles of Prompt Aid to the Injured, Including a Chapter on Hygiene and Disinfection. Designed for Civil and Military Use. Edition 5, Cloth. Pp. 229, with 85 illustrations. New York, D. Appleton & Co., 1912. $1.50.

Warwick, F. J.: First Aid to the Injured, New York, W. R. Jenkins Company, $1.

### KINTZING TREATMENT OF TETANUS

*To the Editor:*—What results have been obtained with Kintzing's prescription for tetanus which is, I understand, intramuscular injection of a solution of pure phenol? It was supposed to have been successfully tried out in nine cases at the Franklin Square Hospital in Baltimore during the past year or two.

F. A. WOODWARD, M.D., Los Angeles.

ANSWER.—No reports on the method of Kintzing have appeared in current medical literature since Kintzing's original article, reporting seven cases with recovery (Kintzing, P.: Tetanus: Seven Cases with Recovery, *New York Med. Jour.*, Dec. 23, 1911; abstr., THE JOURNAL, Jan. 6, 1912, p. 64). Foreign literature has contained favorable accounts of Baccelli's treatment, which is essentially the same.

### PERCENTAGE AND EXTRACTION OF NICOTIN

*To the Editor:*—In the note on the sterilization of tobacco (THE JOURNAL, Feb. 26, 1914, p. 717), I find the statement that tobacco may contain from 0.6 to 9 per cent. nicotin. Please give the best authority as to the percentage of nicotin, and state how it may be extracted. M. M. MARTINSON, M.D., Chattanooga, Tenn.

ANSWER.—Owing to the variety of tobacco, climate, seasonal variation, method of curing, moisture content and other factors, the quantity of nicotin in dried tobacco-leaf varies greatly. Experiments by the French department of agriculture (*Compt. rend. Acad. d. sc.*, cli, 23) have shown that the extreme ranges of nicotin content for various tobaccos lay between 0.22 and 10.5 per cent. The *Lancet* laboratory found that the nicotin content of commercial smoking- and chewing-tobaccos lay between 0.6 and 5.3 per cent., based on the dried leaf.

A number of methods have been proposed for the estimation of nicotin in tobacco. One of the most satisfactory is the following:

From 5 to 6 gm. of tobacco in small pieces are weighed and placed in the flask of a reflux apparatus together with 10 gm. of lead oxid and 100 c.c. of benzene. The flask is immersed in a gently boiling water-bath for one hour. The mixture is cooled and the solvent decanted. The residue is washed several times with small quantities of benzene. The bulked solvent is extracted several times with diluted sulphuric acid in a separator. The acid solutions are bulked and an excess of iodin solution added. After precipitation is complete, the mixture is filtered, the precipitate washed with cold water and suspended in acetone and the iodin determined by titration with tenth-normal sodium thiosulphate.

$$1 \text{ c.c. } N/10\ Na_2S_2O_3 = 0.002 \text{ gm. nicotin.}$$

Nicotin may be extracted from tobacco in an impure form by distilling in steam from an alkaline solution and drawing off the nicotin layer from the distillate by means of a separator. The alkaloid may be obtained in greater purity by collecting the distillate in diluted acid, precipitating with iodin, decomposing the precipitate with sodium sulphite and drawing off the nicotin layer by means of a separator.

### DIMETHYLAMINOBENZALDEHYD REACTION

*To the Editor:*—Please give me the method of detection of urobilinogen in the urine by means of dimethylaminobenzaldehyd.

F. H. NEUHAUS, M.D., Houston, Tex.

ANSWER.—Prepare a 2 per cent. solution of p-dimethylaminobenzaldehyd in equal parts of concentrated hydrochloric acid and water. Add a few drops of this solution to 5 c.c. of fresh cold urine and allow to stand for a few minutes... A positive reaction is indicated by the appearance of a cherry-red color, which may be extracted with chloroform or epichlorhydrin. Heating facilitates the reaction, but here normal urine may give a slight reddish coloration. In the cold, normal urine gives a greenish-yellow color.

# Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

## NEWSPAPER COMMENTS ON PHYSICIANS

Probably at no time have the activities and efforts of physicians been as freely and widely discussed in the public press as at present. This is both an encouragement and a warning. It is encouraging as showing the increasing recognition of public health as a social problem. It is a warning to the medical profession that our activities and motives in the future will be subject to much more rigid scrutiny than in the past. Both the individual and the organization can profitably consider the criticisms which are brought against it. As the social activities of the medical profession increase, the need of correcting our professional ideas in the light of criticisms from a popular view-point will become more apparent. It is also true that if the public must be educated into scientific and professional ways of thinking the profession must also be educated into social methods of thought.

### MEDICAL CONTROL OF MEDICAL PRACTICE

One of the most elaborate criticisms of the medical profession, appeared recently in the Los Angeles Sunday *Examiner*, in the form of a full page editorial, headed by a large cartoon representing Uncle Sam in the clutches of the "three pigmies that rule a giant." The heading of the editorial reads, "One of our nation's big troubles is lawyers, doctors, bankers. We permit these gentlemen to make the rules that govern themselves and govern the whole country." Discussing this proposition, the editor states that this country is governed by doctors, lawyers and bankers. Lawyers make the laws, bankers handle the money, while "we permit doctors to have everything to say about the doctor's business, the hospitals, the public health, and other important matters. We don't permit automobile drivers or automobile manufacturers to control or write the rules of the road. The doctors make their own laws and rule too much for the public good. No matter how wise they may be, or how unselfish, they must permit the assumption that all of the people are wiser than they are." The editor admits that doctors are painstaking, thorough, scientific and unselfish men. The best of them give their discoveries to the public free, whereas other inventors and discoverers take for themselves the protection and profit that the patent office gives. It would be a sad thing indeed if confidence in good doctors were destroyed, but it is wrong, harmful to the public and harmful to the doctors that the latter, like the lawyers, should rule absolutely their own class. People should see to it that the medical profession is managed very largely not for the curing of disease for pay but to prevent disease. This, condensed from a couple of columns of discussion, is the opinion of the editor, illustrated by specific instances of incompetent and mercenary physicians.

The *Examiner* is perfectly correct in its abstract principles, but mistaken in its facts. The fact is that the only laws for the restriction and regulation of physicians that have been passed in this country have been passed at the insistence of the better half of the medical profession. The fact that there are incompetent and mercenary physicians (which is, of course, true) is a matter for which the public is directly responsible. Poor laws and inefficient enforcement of these laws have produced the low grade, commercial and mercenary medical school which, in turn, has turned out the half trained mercenary physician with low ideals. If the public will establish a high standard for the practice of medicine, and will enforce it on all alike, the medical profession would be delighted to turn this responsibility over to the people. The attitude of the average citizen and especially of the majority of members of legislatures, however, is that all sects, cults and classes, no matter how ignorant their followers or absurd their claims, should be given the same rights and recognition as scientifically educated and competent physicians. Having put up bars in the form of standards which the competent and conscientious student must spend years of study and thousands of dollars to pass in order to gain entrance to his profession, public carelessness and loose legislation then proceed to open the back door and admit to the same privileges, ignorant, untrained and fanatical followers of fads, under the plea of "personal liberty." The position of the medical profession on this subject is that it is willing to be bound by any restrictions or qualifications which public opinion will place on it, but asks that the same standard be applied to all who seek the same privilege. This is not being done in a single state. The fact that there are any standards at all is due solely to the efforts of the medical profession. If the public will relieve us of the responsibility of establishing standards and will apply a high standard with perfect equity to all concerned, the condition of the public and profession will be greatly benefited.

### HUMANITARIANISM OF MEDICINE

The Helena, Montana, *Independent*, commenting on the fact that an eminent physician, recognized as an authority in his field, died recently leaving an estate of only $5,000, says:

"These facts emphasize the humanitarian side of the medical profession. The physician is always the butt of jibes and in many cases, the object of suspicion, yet there is no profession or calling that is more unselfish. Does a physician discover a new antidote, a new antitoxin, a new anesthetic? He gives it to the world. He considers it his duty. It is the ethics, the unwritten law of his profession. He would be disgraced in the eyes of his fellow practitioners should he attempt to exploit his discovery for his own benefit. The greatest discoveries of mankind have been made by physicians, and they have been given to the world for nothing, while some of those who made the research paid for their work with their lives, and still others died in poverty. The world never overpays its benefactors; it will always remain in their debt."

### PERSONAL ADVERTISING VS. COOPERATIVE PUBLICITY

The New York *Commercial*, discussing the act of the Medical Society of the County of New York regarding newspaper interviews and professional men, says: "Medical societies which have fulminated against all forms of publicity and advertising by physicians and surgeons have never yet been able to give any logical reason for their objections. The plain truth of the matter is that a few of the older men of the profession are able to maintain the advantages they have already won by keeping the younger members in the background."

The *Commercial*, in common with most of the newspapers discussing this question, confuses individual advertising with cooperative publicity. For a medical organization, through its proper officers, to supply suitable information to the newspapers regarding disease in general and its prevention, is not only entirely legitimate but is not contrary to the ethics of the medical profession and never has been. For an individual physician, however, to advertise his personal qualifications directly to the public or to use the numerous subterfuges adopted by those lacking the courage to advertise openly has always been regarded as an unprofessional and unworthy act and always will be. There is great need of clear thinking on this subject, not only by the newspapers and the public, but by physicians as well.

### "THE WRONG PRESCRIPTION"

Discussing the suggestion that the physicians of Pennsylvania should appoint a legislative agent or prominent committee for lobbying at the state legislature, the Philadelphia *Bulletin* says, "Doctors would do better to get in closer touch with public sentiment and to cultivate an intelligent public opinion. A lobby at Harrisburg is not the right prescription for the emergency which threatens." The *Bulletin* recognizes the fact that protestations of disinterestedness and unselfishness on the part of the medical profession do not harmonize with the use of political methods in securing desired legislation. If the legislation asked for is for the public good, then certainly it ought not to be difficult to convince the public of this fact. If the public cannot be convinced, it should not be forced to protect itself by the enactment of laws through wire pulling, log rolling, political lobbying methods which have of late years been all too frequent in our legislative halls. Public education, and not political activity, is the proper function of medical organizations.

### MEDICAL TRADES-UNIONISM

Under the title "Are We to Have a Doctors' Union Presently?" the New Orleans *State Journal* informs us that the very radical members of the profession are anxious to form a regular physicians' union with a set of by-laws and regulations that will bind them as strongly as the labor unions. According to the *Journal*, there hasn't been much talk of forming unions in this country yet, although, continues the editor, "it has been alleged time and again that the American Medical Association is little more than a union." It is a question, in the mind of the discriminating and informed reader, whether the editor means a little more or a little less. However, he admits that the Association "has done a great deal for physicians and incidentally a very great deal for the general public; that it has been at the forefront of the fight against the manufacture of food poisons and the adulteration of drugs as well as the fake patent medicine fights." "But," concludes the editor, and he feels that this is of sufficient importance to put it in capitals, "IT ALSO RULES THE MEDICAL PROFESSION WITH AN IRON HAND." As the Association membership constitutes a large majority of the medical profession, it must be apparent that the profession rules itself with an iron hand, in which case the fears of the Los Angeles *Examiner* quoted above may be somewhat appeased.

### STATE COMPENSATION FOR PHYSICIANS

The Boston *Globe* discusses the question of whether physicians should be paid by the state, taking its text from Bernard Shaw's topsyturvy arguments, which have evidently convinced the editor to the point of causing him to wonder if there are any honest doctors at all, in view of the fact that physicians derive their income from the ill health and misfortunes of their fellow men. We should perhaps be satisfied with this faint praise, especially as the *Globe* feels that much credit is due us because we can "oftentimes fight the powerful influences which are constantly trying to drag them (physicians) down." The *Globe* rightly feels that anyone that can release mankind from inefficient and dishonest doctors would be doing a great public service, but its acceptance of Shaw's solution, that the state put a premium on good health rather than on illness, does not argue well for the editor's profound knowledge of present public health discussions. This idea, like most of Shaw's opinions, is not original but very much second hand. When Shaw asks, "Why are not public doctors paid by the state?" he asks what physicians have been asking with increasing emphasis for the last forty years. The answer is evident: because the general public is not as yet intelligent enough to demand protection from disease rather than treatment after disease is acquired, nor far sighted enough to pay a reasonable price for such protection. The *Globe* is perfectly right when it concludes "We should pay doctors to keep us well and not make them dependent on the prevalence of disease." The obstacles in the way of this desired consummation are to be found in public ignorance and indifference, and not in professional greed.

## *Medical Education and State Boards of Registration*

### COMING EXAMINATIONS

Arkansas: Little Rock, May 12. Sec., Dr. W. S. Stewart, Suite 404 Citizens Bk. Bldg., Pine Bluff. Homeopathic: Little Rock, May 12. Sec., *Dr.* I. J. Brooks, 219 East 10th St., Little Rock. Eclectic: Little Rock, May 12. Sec., Dr. C. E. Laws, Ft. Smith.

Canada: Alberta, April 24. Dr. Cecil E. Race, Registrar of the University of Alberta, Edmonton.

Illinois: Coliseum Annex, Chicago, May 12-14. Sec., Mr. Amos Sawyer, Springfield.

Louisiana. New Orleans, May 4. Homeopathic Board, Sec., Dr. Edward Harper, 702 Macheca Bldg., New Orleans.

Nevada: Carson City, May 4. Sec., Dr. Simeon L. Lee, Carson.

New Mexico: Santa Fe, April 13. Sec., Dr. W. E. Kaser, East Las Vegas.

New York: May 19-22. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

Oklahoma: Oklahoma City, April 14. Sec., Dr. John W. Duke, Guthrie.

Tennessee: Memphis, Nashville and Knoxville, first week in May. Sec., Dr. A. B. DeLoach, Memphis.

West Virginia: Charleston, April 21. Sec., Dr. S. L. Jepson, 81-12th St., Wheeling.

### Washington January Report

Dr. Conrad N. Suttner, secretary of the Washington State Board of Medical Examiners, reports the written examination held at Spokane, Jan. 6-12, 1914. The number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 39, including 1 osteopath, of whom 38, including 1 osteopath, passed, and 1 failed. The following colleges were represented:

PASSED

| College | Year Grad. | Per Cent. |
|---|---|---|
| University of Colorado | (1913) | 75.9 |
| Chicago College of Med. and Surg. | (1909) | 75.3 |
| Northwestern University (1910) 77.3 | (1911) | 82.8 |
| University of Illinois (1912) 91.6; | (1913) | 90 |
| Iowa College of Physicians and Surgeons | (1900) | 78.3 |
| Baltimore Medical College | (1900) | 81.9 |
| Johns Hopkins University | (1911) | 88.7 |
| Harvard Medical School (1892) 90.1; | (1911) | 86.4 |
| Tufts College Medical School | (1911) | 80.7 |
| University of Mich., Dept. of M. & S. (1890) 79.8; | (1909) | 86.4 |
| Minneapolis College of Physicians and Surgeons | (1908) | 89 |
| Barnes Medical College | (1907) | 77.7 |
| Missouri Medical College | (1895) | 81 |
| University Med. Coll., Kansas City (1909) 77.3; | (1908) | 85.3 |
| Washington University, St. Louis | (1909) | 83.3 |
| University and Bellevue Hosp. Med. Coll. | (1906) | 94.3 |
| University of Oregon (1905) 81.9; (1910) 97; (1911) 84.5; | (1913) | 79.7, 86.8, 87.1. |
| Willamette University | (1913) | 85.9 |
| Jefferson Medical College | (1913) | 82.7 |
| University of Pennsylvania (1907) 85.6; | (1913) | 93.7 |
| University of Pittsburgh | (1911) | 78.7 |
| University of Nashville | (1902) | 77.5 |
| [illegible] | (1912) | 80.3 |
| [illegible] Toronto | (1880) | 77.8 |
| [illegible] Faculty of Medicine | (1909) | 76.7 |
| [illegible] | (1904) | 91.4 |

FAILED

| College | Year Grad. | Per Cent. |
|---|---|---|
| University of Tennessee | (1912) | * |

*No grade given.

## *Book Notices*

Acute Abdominal Diseases, Including Abdominal Injuries and the Complications of External Hernia. By Joseph E. Adams, M.B., M.S., F.R.C.S., Senior Assistant Surgeon, East London Hospital for Children, and Maurice A. Cassidy, M.A., M.D., B.C., Physician with Charge of Outpatients, St. Thomas' Hospital. Cloth. Price $4.50 net. Pp. 571, with 28 illustrations. New York: William Wood & Co., 1913.

In this small volume the authors have attempted to cover a rather wide range of subjects from the anatomy and diseases of the abdomen to diseases which may simulate acute abdominal lesions; hence some of the matter is quite elementary in character. The description of the location of the stomach seems to have been based on findings of the dissecting-room rather than on the findings of modern Roentgen examinations. The English method of operating on patients in their homes rather than in hospitals is advised, and chloroform is given as the anesthetic of choice, notwithstanding the fact that it has yielded to the safer ether and other methods in almost all other countries. One point of considerable importance is well brought out in connection with the etiology of obstruction of the bowel. A careful analysis of 500 cases of obstruction admitted to St. Thomas' Hospital in which a correct anatomic diagnosis was made, either at operation or at necropsy, showed not a single case due to fecal impaction. This fact cannot be too forcefully emphasized, for the practice is still altogether too common for physicians to look on fecal impaction as a very frequent cause of intestinal obstruction, and to work over the patient with physics and enemas until the favorable time for successful operation is passed. In the chapter on diseases which may simulate acute abdominal lesion, a number of interesting conditions are mentioned which have given rise to erroneous diagnoses and at times to the performance of a laparotomy, in the belief that an acute abdominal emergency existed. There are few illustrations. The character of the work is along practical rather than scientific lines.

Early Pulmonary Tuberculosis: Diagnosis, Prognosis and Treatment. By John B. Hawes, 2d, M.D., Director Tuberculin Department, Massachusetts General Hospital. Preface by Richard C. Cabot, M.D., Assistant Professor of Medicine, Harvard University. Cloth. Price, $1.50 net. Pp. 114, with illustrations. New York: William Wood & Co., 1913.

The author states that his aim has been to produce a "short, cheap book which presents the essential points in the diagnosis, treatment and prognosis of early pulmonary tuberculosis. The book is intended for the general practitioner." Without discussion of questions of etiology or pathology, and without going into minutiae as to diagnostic details or confusing complications, he has stated briefly the essentials of diagnosis, prognosis and treatment, emphasizing the importance of the early diagnosis and calling attention to the many sources of error that so often lead to the overlooking of the disease in its stage of curability. The desire for brevity at times forces him to make dogmatic statements with which one might be inclined to disagree, and we are inclined to think that the effort—perhaps unconscious—to be epigrammatic has occasionally enticed him into an assertion that while forceful is too sweeping, and really demands modification. The chapter summaries are good. So also is the advice about leaving the interpretation of a roentgenogram of the chest to an expert. The appendix, showing by descriptive text and by figure how patients may arrange to sleep outdoors, is of extreme value to the general practitioner who plans to treat his patient at home. Dr. Richard Cabot in an appreciative introductory note speaks of this book as "small yet authoritative." This is a just characterization and in accordance with it the book is to be commended.

Tierische Immunität. Von Dr. Werner Rosenthal. Paper. Price, 6.50 marks. Pp. 329. Braunschweig: Friedrich Vieweg & Sohn, 1914.

This is a clear presentation along conventional lines of the principal phases of immunology in language that is understood by workers in other branches of science. The author has paid very little attention to American work.

# Medicolegal

## License Tax on Cows and Herd Inspection Upheld

*(City of Asheville vs. Nettles (N. C.), 80 S. E. R. 236)*

The Supreme Court of North Carolina upholds a license tax assessed at the rate of $1 per head on each cow in a dairy herd. The court says that there was nothing in the record in this case which would authorize it to hold as a matter of law that such a tax is an unreasonable one. The city is authorized by its charter to prescribe regulations in regard to the sale of milk, in order to safeguard the health of its citizens, and is to be commended for the care which it has shown in so doing. It is also authorized by its charter to levy a license tax to provide for the necessary expenditure in making the inspections and enforcing its regulations.

If the costs of the inspections and of supervision are extravagant, the parties interested should make complaint to the city authorities, and, if not corrected, they can, on proper proceedings, have the fact determined in an action for that purpose, and the court will make appropriate orders to correct the evil. If such defense could be set up for the nonpayment of a license fee which is required to be paid in advance, it might seriously interfere with the execution of the regulations of the board of health.

The defendant, on the facts agreed, was engaged in selling milk in the city of Asheville in contemplation of its charter and ordinances. He sold and delivered milk, it was true, to only one customer, a creamery. But this required the same inspection and regulation of the defendant's herd and of its milk as if he had sold to numerous customers. The court finds nothing in the statute which restricts the inspection of such dairy herds and milk to those located within the corporate limits. Probably all the herds are, like this, outside of but near the corporate limits. Where milk is shipped in from other states or distant points, of necessity the inspection is restricted to the milk when put on sale, but not so when the dairy is located in the same county and in the suburbs or near to the city to which the milk is sent. The object of the law is to give the board of health supervision of the sources of milk-supply, its production and sale, so far as is practicable, in order to protect the lives and health of its citizens.

## Not Entitled to License to Practice Medicine—Construction of Resolution

*(Board of Medical Examiners of Oklahoma vs. Gulley (Okla.), 136 Pac. R. 1083)*

The Supreme Court of Oklahoma holds that, under the provision of the constitution of that state that "All physicians, . . . now legally registered and practicing in Oklahoma and Indian Territory shall be eligible to registration in the state of Oklahoma without examination or cost." A physician who had been practicing medicine in Oklahoma territory under a territorial license is not entitled, as a matter of right, to registration since statehood without examination, when it is shown that Sept. 12, 1907, the territorial supreme court had affirmed the decision of the district court canceling and annulling the territorial license under which the physician in this case had been practicing, on the grounds of fraud and deceit in procuring it.

Some right was claimed under the concurrent resolution of the legislature, approved April 2, 1908, which reads: "Whereas, it is claimed that by mistake or otherwise, injustice has been done physicians of certain school or schools of medicine, in the administration of the territorial laws governing the admission of such physicians to practice their profession, as well as in the attempt to cancel the license of those previously admitted to practice; Therefore be it resolved by the House of Representatives, the Senate concurring therein, that the State Board of Health or medical examiners be, and is hereby empowered, authorized and directed to correct any such mistake or mistakes and right any injustices that may have been done any applicant of any school of medicine for admission to practice, and restore to practice any one who, by mistake or otherwise, has been deprived of the right to practice his or her profession, without further cost or examination; that all physicians who have been granted licenses previous to statehood, regardless of school or schools, shall be placed on equal footing with the graduates of the same school, who have been granted license by the State Board of Health or medical examiners."

The court does not deem it necessary to discuss or determine what legal effect the preceding resolution has, for, whether it has the force of law or be merely advisory as expressing the legislative sentiment, it is not believed that it contains anything that can be said to confer on the plaintiff the legal right to registration. It might at first glance be argued that it affords a basis of support to the charge that other graduates of his college had been admitted, and therefore that he had, because of such fact, acquired the right of admission. But this result does not follow. The view the court takes of the resolution is that, where "school of medicine" is mentioned, it refers, not to a particular college or university in which medicine is taught, but to one of the great theories of medicine, such as allopathy, homeopathy, eclectic, etc.

If it were the claim that an injustice had been done the plaintiff in the supreme court decision mentioned, so as to found a claim thereon that he came under the resolution, the facts showing the injustice would have to appear, and then the board would have to determine whether or not the contention were true, if, indeed, the decision of the territorial supreme court could be set aside in such a way. While the board is administrative and executive, and does not exercise judicial functions, yet it has a discretion that it may exercise in the performance of many of its duties.

## Damages for Injury to Person in Weakened Condition and Refusing Operation

*(Maroney vs. Minneapolis & St. Louis Railway Co. (Minn.), 144 N. W. R. 149)*

The Supreme Court of Minnesota says that the plaintiff was a passenger on one of the defendant's trains, which was derailed. She testified that she was unconscious of any ailment before the accident, and that afterward she suffered pain and was partly incapacitated. It appeared that she had an internal ailment, which could not have been wholly caused by the accident. There was opinion evidence tending to show that a weakened condition, which had shown no symptoms and of which she had not been conscious, was aggravated by the accident to such an extent as to develop the disability and the painful symptoms she described. If such were the case, she might recover damages. The evidence was sufficient to sustain a verdict for her on that theory, and one for $1,900 is approved.

It was urged that the plaintiff could be made whole by an operation, which would cost about $200, and that there was nothing on the record which justified the jury in fixing the damage at nine and one-half times that amount. But the court does not think that the evidence of the cost of a surgical operation had any tendency to measure the plaintiff's damage. Whether she should submit to a major surgical operation for an internal malady was a question for her alone to determine. Such operations involve a known risk which she alone must bear. The defendant was in no position to complain that the plaintiff had seen fit to suffer from her ailment rather than to submit to such an operation. Neither could the court or jury pass on the wisdom of her choice. The chances of the operating-table, in such a case, are too grave to require of the plaintiff that she take this course to lessen her damage, or to permit any consideration of such a prospect as a means of determining what damage she had sustained.

**Responsibility.**—City authorities are justly chargeable with the lives of all who die of preventable diseases within their jurisdiction, and they should be made responsible before the courts of justice.—Dr. Benjamin Rush.

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## Competitive Athletics and Mental Development

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Power agrees that there can be no question as to the desirability of a fairly developed muscular system, kept in reasonable activity, for the effect on the organism as a whole and on the brain in particular. In support of this he cites the instance of poorly developed inmates coming from the slum districts of the large cities to the Elmira Reformatory, where efforts are made to give the men the advantages of some education as well as opportunity to learn useful trades. These defective persons appeared at first to possess no capacity or inclination to learn anything, but after a course in physical development were able to profit by mental training. This would not apply to the same degree, however, in the case of the students in high schools and universities, where such muscular deficiency is rare. It would apply still less, of course, to the limited class of men who are selected for the athletic teams of the colleges. It is to this class of men that the inquiry of Power was directed. It is pointed out that the men who take on this form of athletics possess the motor type of mind, and a fluidity of attention. They translate suggestions immediately into action. They are not reflective, and are dominated by habit, which, in athletics, expresses itself in automatic action, and just as actions become automatic they exclude the higher mental activities.

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It was realized by Power that answers to the points enumerated above as to scholarship, mental powers, morals, etc., would have greater value if arrived at after close psychologic investigation by experts, continued over a long period; but on account of the difficulty of carrying out such investigation, and its doubtful value unless conducted in the most painstaking manner, he believed that a consensus of opinion of the majority of men directly engaged in teaching college students must have a value not easily impugned. Taking the answers to the questionnaire it was found that 60 per cent. of the total replies expressed the belief that the athlete is naturally disinclined to study. The high-school professors to the extent of 75 per cent. held this opinion. Likewise 75 per cent. of the answers received, being in equal proportions from university and high-school professors, were to the effect that men in training show a falling off in scholarship. As to the influence on the mental faculties, 94 per cent. believe that concentration is weakened or destroyed; 86 per cent. note weakening of memory; 83 per cent. weakening of will-power, and 78 per cent. of power to reason. The high-school teachers again are inclined to record higher percentages. In regard to the effect on morals, 40 per cent. of the replies were neutral, while a very large proportion of the remaining answers referred chiefly to the ethics of the game and the training period and were favorable to a good moral influence, although there were specific replies which were strongly adverse. For instance, one reply stated that "excessive exercise causes in many cases a kind of specialization that makes a student lose sight of his better ideals, and he degenerates to the level of brutehood." An eminent university president believed that the effect of athletics on ideals and power of restraint is "better when moderate, ruinous when overdone." Power had in mind in asking this question, ideals of conduct not confined to the game, but as a continued influence during life, and though the answers were favorable to the good influence of athletics on the morals of the game, he feels that they are not responsive to the question. History shows that periods of artificially enforced restraint are followed by periods of license, and the custom which makes heroes of athletes and inculcates in them a spirit to win at all costs, to act toward their opponents, as has been said, "in a manner that would almost justify homicide," can hardly be the source of improved ideals. Lastly, the necessity for large sums of money to produce winning teams has commercialized athletic contests and has induced the managers to "put on" the kind of sport that pays, with a regrettable lowering of the whole status of athletics. The subject has been summed up as follows: "The whole influence of the student body of prominent athletics is bad, inasmuch as the interests of the students are taken away from what seems to be the proper place for them, withdrawn from the most important part of man's life and placed on something as trivial as a game." This undoubtedly goes direct to the question of ideals and morals, and is opposed to mental concentration and improvement.

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10 Radical Removal of Faucial Tonsil. V. P. Dabney, Washington.
11 Removal of Faucial Tonsil Followed by Digital Evisceration of Its Capsule. J. A. Ellegood, Wilmington, Del.
12 Frontal Mucocele. G. W. McCoy, Los Angeles.
13 Follicular Odontoma of the Superior Maxilla. Report of a Case. L. W. Dean, Iowa City, Ia.
14 Drainage of Cisterna Magna in Meningitis. N. H. Pierce, Chicago.
15 Use of Vaccines after the Mastoid Operations. W. C. Braislin, Brooklyn.
16 Septic Thrombosis of Lateral Sinus. H. Friedenwald, Baltimore.
17 Bone Conduction in Syphilis. O. Beck, Vienna.
18 Nasal Voice with Reference to Its Bearing on Practice of Rhinolaryngology. E. L. Kenyon, Chicago.
19 Caisson Workers' Deafness. G. W. Boot, Chicago.
20 Ménière Sy [illegible] os Angeles.
21 Malignant [illegible] of Cases. A. L. Kelsey a[illegible]
22 Inflammati[illegible] rynx Leading to Abscess. [illegible] L. Swain, New Haven, Conn.

### Archives of Internal Medicine, Chicago

*March, XIII, No. 3, pp. 349-508*

23 *Pulmonary Attack Simulating Lobar Pneumonia, Caused by Pulmonary Embolism and Infarction from Latent Venous Thrombosis. L. A. Conner, New York.
24 *Comparative Value of Cardiac Remedies. T. C. Janeway, New York.
25 Interpretation of Auscultatory Blood-Pressure Sounds. D. R. Hooker and J. D. Southworth, Baltimore.
26 *Pathologic Study of Two Cases of Heart-Block with Adams-Stokes' Syndrome. E. B. Krumbhaar, Philadelphia.
27 *Coagulation of Normal Human Blood. R. I. Lee and B. Vincent, Boston.
28 Ulcus Ventriculi; A Review. M. H. Gross and I. W. Held, New York.
29 *Skin Reaction Indicative of Immunity Against Typhoid. F. P. Gay and J. N. Force, Berkeley, Cal.
30 Influence of Lithium and Atophan on Uric Acid Excretion of Gouty Patient. A. L. Daniels, Columbia, Mo.
31 Comparative Study of Phenolsulphonephthalein Elimination and Incoagulable Nitrogen of Blood in Cardiorenal Diseases. J. H. Agnew, Ann Arbor, Mich.
32 Comparison of Methods of Obtaining Alveolar Air. W. M. Boothby and F. W. Peabody, Boston.

23. **Pulmonary Attack Simulating Primary Lobar Pneumonia.**—Four patients with acute pulmonary disease supervening in apparently healthy persons, were admitted to the hospital with the diagnosis of acute lobar pneumonia, but the subsequent course of the disease made it evident that the true condition was that of pulmonary embolism and infarction, resulting from a venous thrombosis which, at the time of the onset of the illness, was latent. These cases cited by Conner would almost certainly have passed for instances of atypical pneumonia with a complicating venous thrombosis, had it not been for the fact that at this time Conner was interested in observing the clinical manifestations of thrombophlebitis as it occurs in the course of typhoid, and had been much impressed by the frequency with which pulmonary embolism occurred before any local signs of thrombosis could be detected.

In three of the four cases the sputum consisted chiefly of liquid or clotted blood, and in no case bore any resemblance to the characteristic sputum of pneumonia; in every case the physical signs differed in some respect from those usual in pneumonia—in two cases by the short duration of the signs of consolidation, in one by the absence of frank signs of consolidation, and in one by the anomalous and protracted pleural signs; in all the cases there were indications that the pulmonary lesions were multiple; in none of the cases was there an introductory rigor; in three of the four cases the temperature chart bore little resemblance to the usual chart of pneumonia, and, finally, in three of the four cases there were points in the history to indicate that venous thrombosis existed before the onset of the pulmonary symptoms. No one of these facts alone would be entitled to much weight in the attempt to differentiate these cases from those of primary pneumonia, but taken together they form a mass of evidence sufficient, Conner thinks, to warrant the conclusion that all of these cases were instances of pulmonary embolism and infarction.

24. **Comparative Value of Cardiac Remedies.**—In cases of well-compensated mitral disease, in which auricular fibrillation with great tachycardia sets in acutely, Janeway says, the tachycardia can be controlled by digitalis within forty-eight hours with complete relief of the symptoms, and under long continued digitalis medication such patients may maintain a very fair working ability for several years. It is of importance that treatment be instituted before marked dilatation of the right heart and general venous stasis have ensued. The three elements contributing to the result in these cases are: (1) The existence of a disorder of the rhythm, against which digitalis is absolutely effective. (2) The existence of a valve lesion, the detrimental mechanic effect of which on the circulation are peculiarly heightened by auricular fibrillation. (3) The acute character of the onset of fibrillation in a heart which would have remained well compensated for years, had not the disturbance of rhythm occurred, and which, therefore, must be considered as having had a good right ventricular myocardium.

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8 Complications after [illegible] Corrections of Septal Deviations. [illegible] lphia.
9 Ulceration of Upper [illegible] Tuberculosis. J. N. Mackenzie, Baltimore.
10 Radical Removal of Faucial Tonsil. V. P. Dabney, Washington.
11 Removal of Faucial Tonsil Followed by Digital Evisceration of Its Capsule. J. A. Ellegood, Wilmington, Del.
12 Frontal Mucocele. G. W. McCoy, Los Angeles.
13 Follicular Odontoma of the Superior Maxilla. Report of a Case. L. W. Dean, Iowa City, Ia.
14 Drainage of Cisterna Magna in Meningitis. N. H. Pierce, Chicago.
15 Use of Vaccines after the Mastoid Operations. W. C. Braislin, *Brooklyn.*
16 Septic Thrombosis of Lateral Sinus. H. Friedenwald, Baltimore.
17 Bone Conduction in Syphilis. O. Beck, Vienna.
18 Nasal Voice with Reference to Its Bearing on Practice of Rhinolaryngology. E. L. Kenyon, Chicago.
19 Caisson Workers' Deafness. G. W. Boot, Chicago.
20 Ménière Symptom Complex. H. Hastings, Los Angeles.
21 Malignant Tumors of Nasopharynx. Report of Cases. A. L. Kelsey and J. M. Brown, Los Angeles.
22 Inflammation of Lateral Columns of Pharynx Leading to Abscess Formation. Report of Cases. H. L. Swain, New Haven, Conn.

### Archives of Internal Medicine, Chicago

*March, XIII, No. 3, pp. 349-508*

23 *Pulmonary Attack Simulating Lobar Pneumonia, Caused by Pulmonary Embolism and Infarction from Latent Venous Thrombosis. L. A. Conner, New York.
24 *Comparative Value of Cardiac Remedies. T. C. Janeway, New York.
25 Interpretation of Auscultatory Blood-Pressure Sounds. D. R. Hooker and J. D. Southworth, Baltimore.
26 *Pathologic Study of Two Cases of Heart-Block with Adams-Stokes' Syndrome. E. B. Krumbhaar, Philadelphia.
27 *Coagulation of Normal Human Blood. R. I. Lee and B. Vincent, Boston.
28 Ulcus Ventriculi; A Review. M. H. Gross and I. W. Held, New York.
29 *Skin Reaction Indicative of Immunity Against Typhoid. F. P. Gay and J. N. Force, Berkeley, Cal.
30 Influence of Lithium and Atophan on Uric Acid Excretion of Gouty Patient. A. L. Daniels, Columbia, Mo.
31 Comparative Study of [illegible] ation and Incoagulable Nit[illegible] Diseases. J. H. Agnew, Ann Arbor, Mich.
32 Comparison of Methods of Obtaining Alveolar Air. W. M. Boothby and F. W. Peabody, Boston.

**23. Pulmonary Attack Simulating Primary Lobar Pneumonia.**—Four patients with acute pulmonary disease supervening in apparently healthy persons, were admitted to the hospital with the diagnosis of acute lobar pneumonia, but the subsequent course of the disease made it evident that the true condition was that of pulmonary embolism and infarction, resulting from a venous thrombosis which, at the time of the onset of the illness, was latent. These cases cited by Conner would almost certainly have passed for instances of atypical pneumonia with a complicating venous thrombosis, had it not been for the fact that at this time Conner was interested in observing the clinical manifestations of thrombophlebitis as it occurs in the course of typhoid, and had been much impressed by the frequency with which pulmonary embolism occurred before any local signs of thrombosis could be detected.

In three of the four cases the sputum consisted chiefly of liquid or clotted blood, and in no case bore any resemblance to the characteristic sputum of pneumonia; in every case the physical signs differed in some respect from those usual in pneumonia—in two cases by the short duration of the signs of consolidation, in one by the absence of frank signs of consolidation, and in one by the anomalous and protracted pleural signs; in all the cases there were indications that the pulmonary lesions were multiple; in none of the cases was there an introductory rigor; in three of the four cases the temperature chart bore little resemblance to the usual chart of pneumonia, and, finally, in three of the four cases there were points in the history to indicate that venous thrombosis existed before the onset of the pulmonary symptoms. No one of these facts alone would be entitled to much weight in the attempt to differentiate these cases from those of primary pneumonia, but taken together they form a mass of evidence sufficient, Conner thinks, to warrant the conclusion that all of these cases were instances of pulmonary embolism and infarction.

**24. Comparative Value of Cardiac Remedies.**—In cases of well-compensated mitral disease, in which auricular fibrillation with great tachycardia sets in acutely, Janeway says, the tachycardia can be controlled by digitalis within forty-eight hours with complete relief of the symptoms, and under long continued digitalis medication such patients may maintain a very fair working ability for several years. It is of importance that treatment be instituted before marked dilatation of the right heart and general venous stasis have ensued. The three elements contributing to the result in these cases are: (1) The existence of a disorder of the rhythm, against which digitalis is absolutely effective. (2) The existence of a valve lesion, the detrimental mechanic effect of which on the circulation are peculiarly heightened by auricular fibrillation. (3) The acute character of the onset of fibrillation in a heart which would have remained well compensated for years, had not the disturbance of rhythm occurred, and which, therefore, must be considered as having had a good right ventricular myocardium.

Next to these acute cases of fibrillation in response to digitalis comes the type picture of gradual cardiac insufficiency, with general venous stasis and edema. The more these cases conform to the acute type, the more promptly does the control of the tachycardia by digitalis effect a restitution of function. On the other hand, even in rheumatic mitral disease with fibrillation, if the rate be normal or slow, the effect of digitalis treatment may not be evident until it has been administered for a week or more. In some cases, especially with marked tricuspid regurgitation and liver stasis, it may fail entirely. In other cases the drug acts only after the institution of such accessory measures as the extreme fluid and salt restriction of the Karell diet, which Janeway has found of the utmost value.

The choice of a preparation of digitalis is, to Janeway's mind, largely a matter of taste, provided the one used is known to be effective. As to dosage he prefers a moderate dose, equivalent to not over 0.1 gm. (1½ grains) of the leaves every four hours, which will give definite slowing of the pulse and diuresis in forty-eight hours in rapid fibrillating cases. This dose he continues until the pulse falls to near 60 or becomes bigeminal; failing this, until absorption of edema is complete, or nausea, vomiting, headache or other toxic symptoms ensue.

When any of these evidences of full therapeutic action is obtained, the drug is stopped and not resumed until increasing rate or pulse deficit, or disappearance of coupled beats, show the heart to be escaping from its influence, which usually occurs in from five to ten days. Then one-half or three-quarters of the daily amount given before will control all sypmtoms. In all fibrillating cases with a tendency to rapid rate, after the original digitalis course, Janeway believes the indications for continued, so-called chronic digitalis treatment are absolute. He is positive that failure to obtain satisfactory results from digitalis therapy in the class of cases just discussed is evidence of an inefficient preparation, insufficient dosage, or an improper mode of administration. Whenever digitalis fails, a second and then a third trial should be made with a drug obtained from another source. Failure to respond to digitalis on the part of a heart the seat of active inflammatory processes, as in subactue and chronic septic endocarditis, can in nowise be expected, even though fibrillation exists.

In hypertensive cases of cardiac insufficiency with normal rhythm when the patient develops the picture of chronic passive congestion of the viscera with edema, digitalis is as clearly indicated as it is in fibrillating mitral hearts. Janeway insists that dangerous increase in blood-pressure from digitalis, as used in human beings, is a superstition without any basis of clinical fact. When digitalis alone does not effect prompt improvement in such patients, the caffein diuretics come in as valuable aids.

In a number of instances Janeway has seen marked and lasting benefit from digitalis in aortic insufficiency, where the clinical picture was that of chronic passive congestion and edema.

26. **Pathologic Study of Two Cases of Heart-Block.**—In one case cited by Krumbhaar in which there were transient attacks of heart-block, complicated with Adams-Stokes' syndrome during the last eight days of life, there was found a marked cellular infiltration of the auriculoventricular conductive system. Furthermore, the right branch was found completely obliterated, showing that total destruction of one branch is compatible with an at times normal pulse.

In the second case, one of chronic salpingitis in a woman who sought the hospital for relief from a chronic rheumatic endocarditis with failing compensation, the hitherto localized septic process caused, three weeks after admission, a general peritonitis, pleuritis, pericarditis and localized areas of acute myocarditis, especially in His' bundle and Tawara's node. On the day of her death, due presumably to the heart-block thus caused, there occurred four typical attacks of Adams-Stokes' syndrome, the last of which was fatal.

27. **Coagulation of Normal Human Blood.**—Experimentally Lee and Vincent have been able to demonstrate that the fundamental principles in coagulation as studied by Bordet and Delange in rabbits' blood also hold true for normal human blood. The differences which they found are minor ones. They have found that thrombin requires a longer time for its formation in human blood than in rabbits' blood, and that the minimum amount of serozyme required to permit coagulation to ensue is larger in human blood than in rabbits' blood.

They have been unable to confirm the work of Bordet and Delange on the use of peptone as cytozyme. This is probably due to differences in the preparation of peptone.

Although their argument is open to possible objections, they have shown that white corpuscles can be used as cytozyme; they are perhaps not as efficacious as blood-platelets or tissue juice. They have not been able to employ as cytozome the heated muscle juice of non-human animals in their work on human blood. This is somewhat different from the findings of Bordet and Delange, and tends to confirm their suggestion that there is a certain amount of specificity in the action of the various elements of coagulation. Lee and Vincent found that serozyme is intimately associated with the globulins of the blood. They describe a technic of obtaining human blood which has given very satisfactory oxalated plasma.

29. **Skin Reaction Indicative of Immunity against Typhoid.**—Gay and Force found that a preparation of the typhoid bacillus ("Typhoidin") in all respects similar to Koch's old tuberculin produces a clear-cut cutaneous reaction by the von Pirquet method in 95 per cent. of cases that have recovered from typhoid (20 cases positive out of 21). Two of the cases had suffered from the disease forty-one and thirty-three years before, respectively. The reaction is negative in 85 per cent. of individuals without history of typhoid (41 cases tested). The 9 per cent. of these supposedly control individuals that gave a distinct positive reaction may be suspected of having had a mild and undiagnosed attack of typhoid. Of fifteen individuals vaccinated by the Army method from four and three-quarter years to eight months previously, nine gave a positive skin reaction. Twenty-five individuals vaccinated by the Gay-Claypole sensitized vaccine for from one to eight months previously gave uniformly a positive reaction.

No comparison is made of the efficacy of the two methods, although it is suggested that the skin test may eventually be used for such a determination. It is further suggested that the test is of presumptive value in indicating protection against typhoid whether acquired by recovery from the disease or by artificial immunization against the disease. The test may eventually be used as an indication for revaccination in the individual case.

### Arizona Medical Journal, Phoenix

*March, II, No. 2, pp. 1-19*

33 Constipation. F. D. Garrett, El Paso, Texas.
34 Acute Anterior Poliomyelitis. F. H. Redewill, Phoenix.

### Arkansas State Medical Society Journal, Little Rock

*March, X, No. 10, pp. 243-268*

35 Organization. C. S. Holt, Fort Smith.
36 Examination of Eyes and Ears of School Children. R. H. T. Mann, Texarkana.
37 *Follicular Cysts of Ovary.* R. L. Saxon, Little Rock.

### Boston Medical and Surgical Journal

*March 19, CLXX, No. 12, pp. 405-440*

38 New Coolidge Roentgen-Ray Tube. H. W. Van Allen, Springfield.
39 Tragic Aspects of Whooping-Cough. P. H. Sylvester, Newton.
40 Neurological Social Service, Massachusetts General Hospital, M. Ryther, Boston.
41 Is Sanatorium Treatment Worth While? G. L. Farmer, Boston.

*March 26, CLXX, No. 13, pp. 441-480*

42 *Treatment of Syphilitic Diseases of Central Nervous System by Intravenous Injections of Salvarsan. L. H. Spooner, Boston.
43 Salvarsanized Serum ("Swift-Ellis Treatment") in Syphilitic Diseases of Central Nervous System. J. B. Ayer, Boston.
44 *Epicondylitis (Franke) or Tennis Elbow. W. P. Coues, Boston.

42. **Treatment of Syphilitic Diseases by Intravenous Injections of Salvarsan.**—The following syphilitic character of the process was proved, with one exception, in all the forty-nine cases on which Spooner's work is based. He claims that it is possible to treat in a satisfactory manner syphilitic diseases of the central nervous system by intravenous salvarsan

in an ambulatory clinic. Small doses of the drug are necessary for this purpose, but such dosage yields results. With the exception of six cases placed subsequently on serum treatment, symptomatic improvement has resulted from thorough treatment in a high percentage of cases of tabes and in all cases of syphilis of the central nervous system. No distinct improvement has resulted from treatment of the few cases of general paresis under observation. Improvement in strength and gain in weight is the rule in those who receive benefit. The relief of lancinating pains in tabes and headache in cerebral syphilis is most striking.

Biologic and cytologic changes (in blood and spinal fluid) indicate that there is an organic basis to this symptomatic improvement. Improvement has been maintained over a long period of time—in many instances for from one to two years. The results of laboratory investigation when obtainable and the amelioration of symptoms correspond. Whereas the failures have been in old-standing cases, it is impossible to show any constant relationship between the degree of improvement and the duration of the nervous lesion.

Spooner emphasizes that the most striking improvement follows the first or second injection. Treatment must be persistent and prolonged and should be continued even if all symptoms and laboratory findings have long disappeared. Reactions are infrequent with small doses of the drug. Accidents are rare. The most pronounced successes are in those who show evidence in blood or spinal fluid of intense syphilitic infection. The failures have occurred in those showing feeble reactions. This treatment is advised by Spooner in all cases of syphilitic disease of the central nervous system and abandoned for the serum treatment when conscientious effort in this simple and safe procedure has failed.

44. **Epicondylitis (Franke) or Tennis Elbow.**—From a study of the trouble based on those cases in the literature and of personal ones Coues concludes that two lesions might be causing the symptom complex known as tennis-elbow or epicondylitis. First, a partial tearing of some of the muscular attachments from the external epicondyle, giving rise to the separation of the bony spicules with the possibility of a periostitis from such tearing, which need not necessarily be marked enough to show a radiograph. Second, injury to the radiohumeral joint capsule from antagonistic muscular contraction of the supinator brevis and supinator longus, as believed by Preiser.

### Bulletin of the Medical and Chirurgical Faculty of Maryland, Baltimore

*March, VI, No. 9, pp. 137-154*

45 Baltimore's Facilities for Handling Contagious Diseases. W. Smith, Baltimore.
46 Library Advantages for County Members. M. C. Noyes, Baltimore.

### Colorado Medicine, Denver

*March, XI, No. 3, pp. 69-114*

47 Induced Pneumothorax; Its Use and Abuse. A. S. Taussig and W. N. Beggs, Denver.
48 Technic of Artificial Pneumothorax. H. Schwatt, Edgewater.
49 Cleft Palate. T. E. Carmody, Denver.

### Indiana State Medical Assoociation Journal, Fort Wayne

*March 15, VII, No. 3, pp. 93-140*

50 Laboratory Efficiency. L. B. Wilson, Rochester, Minn.
51 Blood-Pressure and Significance in Hypertension Cases. J. R. Young, Terre Haute.
52 Surgical Treatment for Intracranial Pressure. C. C. Rogers, Chicago.
53 Inexpensive and Simple Ether Vaporizer. P. B. Coble, Indianapolis.
54 Minor Point in Mounting Eye Specimens. W. N. Sharp, Indianapolis.
55 Simple Method of Operating in Cicatrices of Orbit. F. A. Morrison, Indianapolis.

### Journal of Medical Research, Boston

*March, XXX, No. 1, pp. 1-85*

56 *Diphtheroid Bacillus from Leprosy Lesions. S. B. Wolbach and J. A. Honeij, Boston.
57 Cultivation of Free Living Filterable Spirochete (Spirocheta Elusa; New Species from Water.) S. B. Wolbach and C. A. L. Binger, Boston.
58 Filterable Spirochete from Fresh Water. Spirocheta Biflexa (New Species). S. B. Wolbach and C. A. L. Binger, Boston.
59 Filterability of Spirocheta Duttoni. J. L. Todd, Montreal, and S. B. Wolbach, Boston.
60 Distribution and Morphology of Spirocheta Duttoni and Spirocheta Kochi in Experimentally Infected Ticks. S. B. Wolbach, Boston.
61 *Degeneration of Islands of Langerhans Associated with Experimental Diabetes in Cat. J. Homans, Boston.
62 Study of Market Butter of Boston. M. J. Rosenau, W. D. Frost and R. Bryant, Boston.

56. **Diphtheroid Bacillus from Leprosy Lesions.**—The authors describe a culture of diphtheroid bacilli which they have isolated from a case of leprosy. This culture corresponds in all respects to the majority of diphtheroids isolated from leprosy in various parts of the world. The case was that of a Portuguese male with the tubercular type of leprosy; age 47; an inmate of the Massachusetts State Institution for Lepers on Penikese Island. The patient is known to have had the disease for sixteen years. The material obtained was an epitrochlear lymph-node.

The following mediums were inoculated, the selection being made because of reported successful cultivations of the leprosy bacillus by various authors: Ascitic fluid dextrose agar; ascitic fluid agar; ascitic fluid glycerin agar; Ficker's brain agar; Dorsett's egg medium; glycerin agar and placenta extract agar prepared according to the methods of Kedrowski and Duval. Two sets of tubes were inoculated; one each for incubation under aerobic and anaerobic conditions. Immediately after the operation, two guinea-pigs were inoculated intraperitoneally and subcutaneously with a heavy suspension of the gland tissue. Preparations stained for leprosy bacilli show acid-fast bacilli in enormous numbers. The guinea-pigs were kept under observation for nine months and developed no lesions.

Ten days after inoculation a growth was seen in a single aerobic tube of ascitic fluid dextrose agar in the form of a translucent whitish band around the piece of gland tissue. The peculiarities of the growth were evident on first examination, and its similarity to diphtheroids isolated by other observers was at once apparent, and for that reason transfers were made to various mediums. When first isolated, the growth was poor in bouillon, with or without glycerin, and on plain agar, dextrose agar and glycerin agar. After several months' cultivation the bacillus grew readily on these mediums. No growth has been obtained on potato, with or without the addition of 0.5 per cent. to 1 per cent. of sodium carbonate. Glycerin does not favor the growth of this bacillus.

The most striking thing about the morphology of this bacillus is its extreme pleomorphism. The morphology varies considerably with the medium employed, and with the age of the culture. A characteristic feature of all cultures is the presence of acid-resisting granules and segments. The bacilli are not motile. They are strongly Gram-positive. They stain by the ordinary aniline dyes, though less intensely than most other bacteria, and markedly less than the diphtheria bacillus. After staining with carbol fuchsin, they resist decolorization to the extent that portions of the bacilli remain a bright red, after treatment with decolorizing agents. No lesions have been obtained in Japanese waltzing mice, guinea-pigs, rabbits and white rats.

61. **Degeneration of Islands of Langerhans.**—Homans concludes that the islands of Langerhans must be deeply concerned with experimental pancreatic diabetes, for (*a*) the removal of more than three-quarters of the pancreas of the cat, leaving the main duct *in situ*, usually leads to a disappearance of secretory granules in the islands of Langerhans, with suggestive evidence of overactivity, without the production of diabetes, and (*b*) the same procedure occasionally causes a degeneration of the islands of Langerhans accompanied by fatal diabetes without disturbance of the remaining acinous tissue.

### Journal of Nervous and Mental Diseases, Lancaster, Pa.

*March, XLI, No. 3, pp. 137-207*

63 Case of Subcortical or Pure Motor Aphasia (Dejerine) or Anarthria (Marie). F. X. Dercum, Philadelphia.
64 *Histopathologic Changes in Spinal Cord Due to Impact. An Experimental Study. A. R. Allen, Philadelphia.
65 Case of Dystonia Musculorum Deformans. C. C. Beling, Newark, N. J.

66 *Albumen Content of Spinal Fluid, Its Relation to Disease Syndromes. A. Myerson, Taunton, Mass.
67 *Contralateral Periosteal Reflexes of the Arm. A. Myerson, Taunton, Mass.
68 Contralateral Oppenheim and Gordon Reflexes. A. Gordon, Philadelphia.

64. **Histopathologic Changes in Spinal Cord.**—Three cases of fracture dislocation of the spinal cord in the human subject in which the median longitudinal incision was used are cited by Allen. The first case was a man of 50 years of age who had fallen thirty feet from a scaffolding, landing on his back and head. There was complete motor paralysis and anesthesia for all forms of sensation of the lower limbs. The Roentgen ray discovered a lateral displacement of the sixth on the seventh thoracic vertebra. The diagnosis of fracture dislocation of the spinal column complicated by fracture of the base of the skull was subsequently confirmed at necropsy. Allen saw this patient ten hours after the injury by which time the limit of anesthesia had ascended about fifteen centimeters and his condition was desperate. The median longitudinal incision was made and there was discharged at once from the cord wound considerable blood. The next day the limit of anesthesia had begun to fall and in forty-eight hours had fallen to the original level. Unfortunately the cranial condition began to give trouble about five days after the injury and ten days after the accident he died.

The second case was that of a man about 40 years of age who had been struck just below the vertebra prominens by the end of the pole of a rapidly moving wagon. There was a transverse lesion of the first thoracic segment of the cord presenting the symptom complex of complete solution of continuity. The area of anesthesia ascending slowly and the conditions justifying exploratory laminectomy, Dr. Edward Martin operated about seven hours after the injury. The course of this case subsequent to operation gave every reason to hope for a favorable termination. In two days the limit of anesthesia had fallen to the original level and in four days there was a moderate return of deep pressure sense and sense of position in the lower extremities.

From the first there were indications that only most careful nursing would prevent the formation of bed-sores. His general condition became progressively better and all signs were favorable when, ten days after the operation, his wife insisted on taking him home. He died several days after, his entire sacral region being the site of an enormous bed-sore.

The third case was one of fracture dislocation in the upper thoracic region in a young boy of about 17 years. Dr. C. H. Frazier operated four hours after the injury. When the cord was incised the blood spurted out as if under great pressure. It is now over a year since this patient was operated on. Function though not restored is improving gradually.

66. **Albumin Content of Spinal Fluid.**—In the full-fledged general paresis, Myerson found that the relationship of albumin, globulin, cells and Wassermann is quite constantly one of parallelism but that in the remissions the Wassermann reaction disappears first, the cell count and globulin increase diminish next, and the albumin most constantly remains at a high level of increase. This points toward a conclusion which is merely a forward deduction—namely, that in the preparetic stage the albumin increase is probably the first sign of disease. In Korsakoff's disease, in certain cases of tumor, and in other organic diseases there is a dissociation of albumin and globulin in this sense, that there is either marked increase of albumin without globulin or that a marked increase of albumin, say 3+, is accompanied by a globulin increase of say, only 1+.

These two series of facts lead Myerson to the conclusion that the increase of albumin is a primitive reaction of the nervous system and is the first as well as the most constant of the present known chemical and biologic changes to appear in the spinal fluid. He urges that tests to ascertain its presence should be part of the routine spinal fluid examination. Its exact measurement and significance constitute a task worthy of neurologic research.

67. **Periosteal Reflexes of the Arm.**—With the patient lying flat on his back and his arms in an easy, relaxed attitude, usually with slight flexion at elbow and moderate internal rotation, Myerson taps the middle of the clavicle with a reflex hammer. When present, the response elicited is a contraction of the biceps and pectoralis major of the othe arm. Usually when the contralateral response is elicite there is at the same time a homolateral response of the co responding muscles, but on several occasions in his experien the contralateral response only has been present.

This contralateral arm response is elicited only with hyperactivity of the arm reflexes generally. Nevertheless, certain cases giving very lively homolateral reflexes from the percussion of the ordinary points (radial styloid, humerus, ulnar styloid) have failed to give the contralateral response from the clavicle. At the same time the cases giving only moderately increased arm responses have shown very lively contralateral clavicular response. This is mostly in such organic diseases whose effect is to increase reflexes, notably general paresis, hemiplegia, multiple sclerosis, tumor of the brain and meningitis. It may be stated that the response is present in only a minority of patients presenting these diseases, and usually in such cases the other responses are very active.

It is present, occasionally only, in certain abnormal mental conditions not at present understood to be organic. In a few cases of dementia praecox, manic-depressive insanity and hysteria, the response was elicitable, despite the fact that organic disease could be ruled out chemically by negative Wassermann in serum, by negative Wassermann, cell count, globulin and albumin in spinal fluid, by the absence of kidney changes and by negative fundus examination. In such cases the emotional content was usually of an intense kind, either of fear or anxiety. The response is absent under normal conditions, therefore Myerson claims for this sign that its presence indicates an abnormal condition, not necessarily one associated with organic disease, although this is the more usual association.

### Kansas Medical Society Journal, Kansas City

*March, XIV, No. 3, pp. 89-130*

69 Gastric and Duodenal Ulcer. E. T. Shelly, Atchison.
70 Gastric and Duodenal Ulcers. Report of Cases. G. M. Gray, Kansas City.
71 Physicians and Druggists Co-Workers, not Competitors. F. G. Fowler, Independence.

### Lancet-Clinic, Cincinnati

*March 21, CXI, No. 12, pp. 329-356*

72 Progress of Serology in Psychiatry. B. Holmes, Chicago.
73 Proper Interpretation of Wassermann Reaction in Diagnosis. Its Value as Guide to Treatment. N. D. Goodhue, Dayton.
74 After-Treatment of Abdominal Section. C. L. Bonifield, Cincinnati.

### Medical Record, New York

*March 21, LXXXV, No. 12, pp. 507-552*

75 *Method for Estimating Functional Capacity of Kidneys by Forced Elimination of Preformed Urea. G. W. McCaskey, Fort Wayne, Ind.
76 Use of Pineal Gland in Treatment of Certain Classes of Defective Children. W. N. Berkeley, New York.
77 Syphilis. W. P. Cunningham, New York.
78 Passing of Stomach Tube. J. Meyers, Albany.
79 Etiology and Surgical Treatment of Gastric and Duodenal Ulcer. J. S. Brown, Montclair, N. J.
80 Surgical Ionization and Other Physical Forces in Treatment of Cancer. G. B. Massey, Philadelphia.
81 *Skin Varnish and Substitute for Rubber Gloves. E. McDonald, New York.
82 Pituitary Preparations in Post-Operative Conditions. T. W. Harvey, Orange, N. J.

*March 28, LXXXV, No. 13, pp. 553-598*

83 Mental Infantilism in Tic Neurosis. L. P. Clark, New York.
84 Determination of Blood-Pressure as Aid to Diagnosis and Prognosis in Certain Diseases. A. Woldert, Tyler, Tex.
85 Nerve Injuries. C. G. Levison, San Francisco.
86 *Case of Syphilis Cured Apparently by Accident. J. B. Clark, New York.
87 Streptococcic Infection of Cervix Uteri. E. A. Peterson, Mobile, Ala.

75. Abstracted in The Journal, Sept. 20, 1913, p. 994.

81. **Skin Varnish and Substitute for Rubber Gloves.**—The skin coating devised by McDonald, which is said to be impervious, easily applied and sterile, is composed of a base of pyroxylin (soluble cotton of commerce) dissolved in amyl acetate and acetone, with the addition of propyl and ethyl alcohol and saponifiable ester. It contains 1 per cent. of a

strong oil—soluble germicide. The varnish is a golden yellow liquid, having the consistency of maple syrup.

This solution is said to have the following advantages: It is readily applied and removed; it is insoluble in all water solutions and not affected by the heat of the body; it adheres strongly to the hand and penetrates all the crevices of the skin, fixing the bacteria; it goes readily under the nails, where the most organisms reside; it cannot be scraped off the skin with a knife, the superficial layers of the skin itself coming away along with the varnish if pressure is exerted.

After the hands are sterilized, and reasonably dry, a small quantity is poured in the palm of one hand and then rubbed over all surfaces of both hands, as if it were vaseline or other grease. Care should be taken to coat every part; as soon as stickiness begins, the hands are held quiet or waved in the air for a minute or so until the varnish dries. If the room is hot, or it is summer, a slight stickiness or "tacky" feeling may persist; but this may be immediately removed by plunging the hands into sterile water. The varnish then is smooth, firm and elastic, and may be removed only by acetone or other solvent of collodion. The best solvent for removal is equal parts of acetone and denatured alcohol. Removal is best done by a piece of absorbent cotton and a saucer of the alcohol-acetone solution. An orange stick is useful to work under the nails.

86. **Case of Syphilis Cured Apparently by Accident.**—By mistake Clark's patient used 2 ounces of unguentum hydrargyri in the space of four rubbings, and rubbed it in over the entire body. After six days there was a decided diminution of the macular rash, and as he showed no toxic effects, he was again started on inunctions, and made to understand how to proportion the amount used at each rubbing and told to use it this time but every other day.

This treatment was continued until May 3, which was a period of just one month's duration. The patient at that time left the city. Just six years afterward he returned. During that period he had no treatment or care of any kind; he felt perfectly well and had seen no signs of the disease. The Wassermann reaction proved to be entirely negative. Clark asks, is not the amount of mercury which the body can endure, barring the corrosive salts, very much greater than is commonly supposed? Is it not within the province of reasonable speculation that we may come as near to a therapic sterilans magna with mercury as with an arsenical preparation?

### Missouri State Medical Association Journal, St. Louis

*March, X, No. 9, pp. 305-354*

88 Causation and Prevention of Infantile Paralysis. E. W. Saunders, St. Louis, R. Meisenbach, Buffalo, and W. E. Wisdom, De Queen, Ark.
89 Nailing of Joint Fractures, Report of Cases. E. F. Robinson, Kansas City.
90 Intussusception in Infants. F. C. Nifong, Columbia.
91 Luke the Greek Physician. (Concluded.) G. Homan, St. Louis.
92 Relation of Atmospheric Air to Tuberculosis. H. Lee, St. Joseph
93 Advantages of Organization in Medical Profession. T. O. Klingner, Springfield.

### New Jersey Medical Society Journal, Orange

*March, XI, No. 3, pp. 109-162*

94 Nature, Cause and Relief of Nephritis. M. H. Fischer, Cincinnati.
95 Wounds and Their Treatment. G. K. Dickinson, Jersey City.
96 How Can We Lower Mortality in Abdominal Surgery? J. W. Kennedy, Philadelphia.
97 Contract Practice. J. S. Yates, Paterson.

### New York Medical Journal

*March 21, XCIX, No. 12, pp. 561-612*

98 Fairy Tales as Determinant of Dreams and Neurotic Symptoms. A. A. Brill, New York.
99 Abderhalden Reaction in Psychiatry. B. Holmes, Chicago.
100 Scarlatiniform Eruptions in Septic States. R. N. Willson, Philadelphia.
101 Relaxed Ear Drums. H. Hays, New York.
102 Etiology and Treatment of Infantile Wasting. H. Lowenburg, Philadelphia.
103 Gynecic Examination. C. M. Stimson, Philadelphia.
104 Acute Lymphocythemia. E. E. Cornwall, New York.
105 Trachoma and Allied Conjunctival Affections. H. W. Wootton, New York.
106 Graduate Nurse. R. Hertzberg, Stamford, Conn.

*March 28, XCIX, No. 13, pp. 613-660*

107 Treatment of Chronic Nephritis. J. Tyson, Philadelphia.
108 Conservation of Functions of Ear, Nose and Throat. W. S. Bryant, New York.
109 *Obstructions in Lower Ureter.* L. Buerger, New York.
110 Teaching Classification for Terata and Hemiterata. R. A. Kelly, Philadelphia.
111 *Common Colds. N. P. Stauffer, Philadelphia.
112 Technic of Oil-Ether Colonic Anesthesia. J. T. Gwathmey, New York.
113 Organic and Psychogenic Delirium. H. L. Levin, Ogdensburgh.
114 Dose of Hexamethylenamin. F. D. Austin, Charlotte, N. C.
115 Salvarsan in Rhinoscleroma. L. G. Kaemperer, New York.

111. **Common Colds.**—Stauffer divides rhinitis into three stages: (1) Dryness or prickling of nose and throat accompanied by chilliness. The mucosae are quite hyperemic, dry and free from secretions; headache with fulness between the eyes. The temperature ranges from 99 to 104 F. Treatment comprises hot baths, purges (calomel and salts; salts especially to deplete the system of water); rest in bed; icebag to forhead; hot water bag to feet; internally 10-grain Dover's powder and hot lemonade to promote sweating; in the nose, locally, epinephrin 1:5,000. (2) Profuse watery discharge, throat sore, headache less. Treatment: Atropin internally until dryness of nose and throat develops; hot alkaline nasal douches; hydrochlorid of cocain daily, 1 per cent. solution applied. (Caution.—Never prescribe cocain for a patient to use at home). When using cocain always have aromatic spirits of ammonia handy. (3) Mucopurulent discharge, a lowered temperature, pulse less bounding, headache diminishing unless sinuses are involved, whereupon headache and pressure symptoms increase, accompanied by dizziness. Treatment: Hot alkaline nasal douches, hydrochlorid of cocain to nares, oil sprays, strychnin sulphate, $\frac{1}{100}$ grain three times a day, egg and milk, increased exercise, alcohol rubs twice daily; hexamethylenamin 5 grains, internally three times a day. *This deals with the common cold up to the involvement* of the sinuses, whether of the nose, ear or mastoid.

### New York State Journal of Medicine

*March, XIV, No. 3, pp. 119-174*

116 Head and Trunk Position in Treatment of Surgical Lesions of Abdomen. R. S. Fowler, Brooklyn.
117 Chronic Stenosis of Larynx. T. J. Harris, New York.
118 *Intravenous Use of Paraldehyd. G. K. Collier, Sonyea.
119 Past and Present Relations between Public and Medical Profession. E. B. Kaple, Elbridge.
120 Certified Milk of Medical Society of County of Westchester. B. F. Drake, New Rochelle.
121 *Phases of Treatment of Strangulated Hernia.* F Flaherty, Syracuse.
122 Ileus Due to Bands and Adhesions. G. F. Comstock, Saratoga Springs.
123 Different[illegible] lysis Occurring in Early Life. H. A. [illegible]
124 Tumor o[illegible] L. H. Finch, Amsterdam.
125 Treatment of Fracture of Neck of Femur. J. B. Conant, Amsterdam.
126 Diagnosis and Treatment of Iritis. R. L. Crockett, Oneida.
127 Streptococcic Throat Disease. H. J. Ball, Cortland.
128 Non-Medical Anesthetists. L. Irwell, Buffalo.
129 Roentgen Stereography in Diagnosis of Urinary Calculi. E. W. Caldwell and H. M. Imboden, New York.
130 Backache. C. E. Coon, Syracuse.

118. **Intravenous Use of Paraldehyd.**—Collier endeavored to find if this plan of administration would be of any great value in the treatment of the acute confused states met with in epilepsy and other nervous and mental disorders. He thought that if he could administer paraldehyd intravenously prior to any hydrotherapeutic or other measures instead of using chloral or hyoscin or other powerful depressants it would be a great step in advance in dealing with these mental states. He used paraldehyd intravenously in such cases as became mentally confused following seizures, status epilepticus, epileptic furor and for minor surgical operations. In none of the cases has it been necessary to resort to other methods of medication or treatment to produce the desired result.

Collier's method of administering paraldehyd is as follows: A definite amount of paraldehyd, varying from 7 to 22 c.c. of paraldehyd, was first mixed with an equal amount of ether and this solution then diluted with 150 c.c. of cool sterile water or a cool 1 per cent. sodium chlorid solution. Care was always taken to see that this solution was kept cool, the flask being surrounded with ice while preparations were being made. It was found in this way that the paraldehyd was better held in solution. The flask containing the solution was briskly shaken and through the cork two glass tubes passed. To one of these was attached a rubber tube, at the distal end of which was a fine needle for puncture of the vein. The second tube is curved on itself, the external limb extending below the bottom of the flask to permit of the entrance of air. Short pieces of glass tubing are placed in the rubber tube so that the solution can be inspected and in order to prevent the injection of air into the vein. The flask being inverted, a constant flow of the paraldehyd solution is obtained, which is regulated by the aid of a screw stop-cork. Puncture was made into the median basilic vein, and in only two cases was it necessary to expose the vein for puncture, the needle being inserted into the vein through the skin without any difficulty. Seven cases are cited to show how effective this treatment was.

### Vermont Medical Monthly, Burlington

*March, XX, No. 3, pp. 53-78*

131 Treatment of Nephritis. J. McCrae, Montreal.
132 Epidemiologic Aspects of Travel. H. D. King, New Orleans.
133 Infant Mortality. H. L. K. Shaw, Albany, N. Y.
134 Modern Anesthesia. E. I. Hall, Rutland.
135 Eyes of Schoolchildren. L. W. Flanders, Dover, N. H.

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## FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

### British Journal of Children's Diseases, London

*March, XI, No. 123, pp. 97-144*

1 *Unusual Manifestations of Poliomyelitis. F. E. Batten.
2 Addison's Disease in a Boy. with Calcification of Adrenals. H. D. Rolleston and E. J. Boyd.
3 *Tongue-Chewing. B. Myers.
4 Nervous Diseases of Elementary Schoolchildren, Boys and Girls. J. Priestley.

1. **Unusual Manifestations of Poliomyelitis.**—The conditions noted by Batten were: (1) Athetosis of left arm and left side of face, flaccid paralysis of left leg, and some flaccid paralysis of right leg. (2) Poliomyelitis with rigid extension of the legs at the hips. (3) Poliomyelitis with flaccid palsy of the right arm and left leg, with rigidity of the right leg in the flexed position. (4) Poliomyelitis of the right arm and left leg occurring during intra-uterine life. (5) Poliomyelitis and ataxia; probably due to involvement of the cerebellum. (6) Poliomyelitis and toxic neuritis.

3. **Tongue-Chewing.**—The condition described by Myers consisted of chewing of one side of the tongue by the teeth after practically the identical manner in which children chew chewing-gum. In the process the premolars and molars of the particular side of the jaw moved inward over the tongue for about a quarter of an inch, and then glided over and off it until the upper and lower molars were in apposition again; then the movement was repeated. The rate was about ninety per minute. The chewing movement was kept up for a few seconds, minutes, or half an hour. It was performed once or twice daily, or intermittently at various intervals. The repetition of the habit made part of that side of the tongue distinctly red and occasionally inflamed and indented. Myers has never seen a child chew both sides of the tongue, and the side chewed is apparently never varied.

Tongue-chewing is first noticed about the second year of life and persists until middle age, or, perhaps, throughout life. It tends to be less noticeable with advancing years. Either sex may suffer from it. It occurs, apparently, in healthy families, in which certain members suffer from habit spasms. Several members of one family may suffer from it. The habit is inherited, as far as one can see, and not copied. The same side of the tongue is always chewed in the same individual. The mental condition is quite normal and the general health is not interfered with in any way. Bromids stop the tongue-chewing but in time, after leaving off the drug, the habit recommences.

### British Medical Journal, London

*March 14, I, No. 2776, pp. 573-632*

5 Diagnosis of Tabes Dorsalis. G. Holmes.
6 Treatment of Syphilis of Nervous System by Intrathecal Injections. H. Campbell.
7 Problems in Treatment of Venereal Disease. A. L. McIlroy.
8 Arseno-Therapy in Syphilis with "Galyl." J. J. Abraham.
9 Diagnosis and Treatment of Chronic Gonorrhea and Its Local Complications. H. W. Bayly.
10 Case of Otitic Meningitis and Cerebellar Abscess, Recovery. A. E. Barnes and W. S. Kerr.
11 Hygienic Aspect of Coal Mining Industry in United Kingdom. F. Shufflebotham.

### Edinburgh Medical Journal

*March, XII, No. 3, pp. 193-288*

12 Injuries of Eye. W. G. Sym.
13 Diet in Development of Dental Caries and Dyspepsia in Childhood. J. D. Fordyce and J. H. Gibbs.
14 Isolation of Scarlet Fever. W. Robertson.
15 Intestinal Toxemia. D. C. Watson.
16 Place of Gynecology in Medical Curriculum and General Practice. A. H. F. Barbour.
17 Three Cases of Beriberi. R. A. Fleming.

### Journal of Obstetrics and Gynecology of British Empire, London

*January, XXV, No. 1, pp. 1-52*

18 *Rhabdomyosarcoma of Uterus. Report of Two Cases. E. Glynn and W. B. Bell.
19 *Syphilis in Relation to Uterine Disease. B. Whitehouse.
20 Case of Adeno-Chondrosarcoma of the Uterus. H. Murray and R. M. Littler.
21 *Case of Peritoneal Implantation of an Ovum. M. H. Phillips.
22 Fatal Case of Puerperal Infection with Bacillus Aerogenes Capsulatus. D. Dougal.
23 Excessive Separation of Recti Muscles and Hernia of Abdominal Contents in Woman Suffering from Myxedema. J. N. Stark.
24 Lipomatosis of Fibromyoma of Corpus Uteri. G. Ley.
25 Endothelioma of Cervix. A. Donald.
26 Endothelioma of Vulva. D. G. Newton.
27 Concealed Accidental Hemorrhage Accompanied by Intraperitoneal Hemorrhage. H. Clifford.

18. **Rhabdomyosarcoma of Uterus.**—Rhabdomyosarcoma appears to be a very rare neoplasm in the uterus or else it has been overlooked in Great Britain, for, apart from a brief report of one of their own, the authors were unable to find any previously recorded case in Great Britain. Cases have been described by German writers; one by Colomiatti in Italy, and one in America by Robertson, who gave a table of fourteen cases collected from the literature. Three of them, however, were not certainly rhabdomyosarcomata. Glynn and Bell have collected fifteen undoubted cases and three probable ones, and have added two recent cases of their own.

19. **Syphilis and Uterine Disease.**—Whitehouse emphasizes the importance of recognizing a form of fibrosis of the uterus produced by the virus of syphilis; in other words, the existence of a true syphilitic fibrosis; the necessity of testing by the Wassermann reaction all patients who present the clinical picture of chronic metritis and fibrosis, since this may provide the only evidence of the syphilitic nature of the affection; the exact proportion which cases of syphilitic fibrosis bears to similar gross changes produced by other factors must at present remain undetermined, until a longer series of cases has been investigated. Whitehouse suggests that it is possible that so-called cases of non-malignant pyometra are also of syphilitic origin, and if no obvious signs of syphilis are present such patients should be tested by the Wassermann reaction. He also suggests that the menstrual blood be examined for the *Spirochaeta pallida*, especially during the secondary stage of syphilis, since the intracellular bodies described by Ross and McDonagh have been demonstrated. He cites seven cases.

21. **Peritoneal Implantation of an Ovum.**—Phillips describes a case in which an early ovum was found implanted in the subperitoneal connective tissue on the side wall of the true pelvis. Abdominal section had been performed for profuse intraperitoneal bleeding. As blood was oozing from among the fimbriae of the left fallopian tube, this tube was removed. Later on careful examination of the tube showed that the bleeding was due to the presence of small areas of trophoblast and early chorionic villi situated at the bases of two of the fimbriae, but there was no complete implantation sac. On the other hand, a hemorrhagic nodule, with a peritoneal covering, which was excised from the lateral pelvic wall, had been found to contain an early ovum completely embedded in the extraperitoneal connective tissue.

### Lancet, London

*March 14, I, No. 4724, pp. 731-802*

28 Changes in Blood in Causation of Surgical Shock. A. R. Short.
29 Agglutination of M. Melitensis by Normal Cow's Milk. P. W. Bassett-Smith.
30 *Case of Transgastric Excision of Gastro-Jejunal Ulcer. B. G. A. Moynihan and E. T. Tatlow.
31 Technic of Wassermann Reaction. C. H. Browning.
32 Two Cases of Popliteal Aneurysm. H. B. Robinson.
33 "Ambulant" Treatment of Fractures with Plaster of Paris and Fracture Clamps. Hackenbruch.
34 Recurrent Intussusception. H. T. Gray.

30. **Gastrojejunal Ulcer.**—The patient, a male aged 47, whose clinical history forms the basis of Moynihan and Tatlow's paper, had a history of abdominal trouble extending over seven years. At the commencement his only symptom was epigastric pain on kneeling, on leaning forward, in fact, after any movement which caused contraction of his recti abdominis. Gradually this pain became more severe, occurring at almost regular intervals, independently of movement, and accompanied by flatulence and hyperacidity. The pain was of the variety known as "hunger pain," commencing from two to three hours after meals, and being relieved by lying down or taking food. There was never any vomiting. The site of the pain was above and to the right of the umbilicus. At first this pain was only felt at intervals; gradually, however, the intervals became shorter and the periods of pain longer. After three and a half years of this the patient had a sudden attack of severe abdominal pain in the right hypochondrium, which was diagnosed as a subacute perforation; from this attack he recovered without operation. In January, 1912, a posterior gastro-enterostomy was performed by another surgeon. The patient recovered from this operation, and his symptoms subsided only to return about eight months later. The pain after this was lower in the abdomen and more to the left than previously, and was really the only symptom he had; but this pain was severe in character, and for the last few weeks almost constant in duration.

The abdomen was reopened. The scar of the previous operation was excised. The transverse colon, which presented in the wound, was markedly hypertrophied and distended and also kinked in a very curious fashion—its middle portion being adherent to the under surface of the left lobe of the liver and to the diaphragm. Before the stomach could be examined it was necessary to separate the adhesions fixing the colon in this unusual position. This separation was exceedingly difficult, owing to the inaccessibility of the parts. The stomach itself was normal in outline, but there was a scar of an old ulcer on the anterior surface of the first stage of the duodenum. The anastomosis which had been performed was a posterior, vertical, no-loop gastro-enterostomy. The stoma was of adequate size and in the correct position. On feeling the stoma with the finger a hard nodule the size of a shilling, with a dimple in its center, could be detected. This nodule, which was thought to be a gastrojejunal ulcer, could be clearly palpated through the anterior wall of the stomach. In view of the technical perfectness of the original operation and the consequent difficulty of a local resection (posterior), it was decided that a transgastric excision of the ulcer would be a safer operation than an excision of the entire anastomosis. Accordingly, while the assistant passed two fingers, one on either side of the jejunal loop so as to grip the ulcer, a longitudinal incision was made through the anterior wall of the stomach parallel to the curvatures and midway between them. On opening the stomach the posterior wall was everted through the incision, thus bringing the gastrojejunal ulcer into view. The ulcer was almost entirely gastric, being just on the edge of the stoma. On opening the stomach a piece of silk (? or linen thread) was found hanging loose from the region of the ulcer. Excision was performed with scissors, and the opening made in the posterior wall of the stomach closed with through-and-through sutures passed from the mucosa. The anterior incision was then closed, leaving only room for a No. 14 rubber catheter, which was passed into the stomach and along the efferent jejunal loop. After the closure of the anterior incision a few interrupted Lembert sutures were passed posteriorly in the region of the original anastomosis to make things quite snug; the abdomen was then closed, leaving the catheter *in situ*. The patient was given 4 ounces of peptonized milk through the gastrostomy tube before leaving the table.

The patient made an uneventful recovery from this operation. On the twenty-first day the gastrostomy (or gastro-jejunostomy) tube was removed and feeding by the mouth commenced. Ten days later the patient left in excellent health and enjoying a light white meat diet.

### Practitioner, London

*March, XCII, No. 3, pp. 301-456*

35 Chronic Intestinal Stasis. W. A. Lane.
36 Radiations and New-Growths. W. S. Lazarus-Barlow.
37 *Sprains and Strains of Knee-Joint. G. L. Cheatle.
38 Treatment of Fractures by Direct Extension of Fragments. C. Woodward.
39 *Brachial Neuritis. C M. H. Howell.
40 Diagnosis of an Acute Abdomen. A. Carless.
41 Subacute Infective Endocarditis. T. G. Moorhead.
42 Recent Advances in Clinical Pathology. W. D. Emery.
43 Work on Vaccine Therapy. A. Fleming.
44 "Myalgia," or Muscular Rheumatism. W. H. Kesteven.
45 *Attempt to Evaluate, on a Physiologic Basis, Some Current Methods of Treating Acute Pneumonia. E. Cuctin.
46 Morphinomania. W. K. Anderson.
47 *Thermoprecipitin Reaction in Diagnosis of Pulmonary Tuberculosis. E. T. Fraser.
48 Relation of Time of Day to Mortality. E. Billing.
49 Case of Rat-Bite Fever Treated with Intravenous Injection of Neosalvarsan. A. K. Dalal.

37. **Sprains and Strains of Knee-Joint.**—In the acute case, where a severe sprain has occurred for the first time, and in which no rupture of the ligamentum patellae has occurred, Cheatle says the limb must be rested for about twenty-four hours, not necessarily in a splint—a thick layer of cotton wool and a bandage is often quite sufficient. If it is seen within the first five minutes, cold might arrest the hemorrhage. After the first half hour, it is best to apply to the articulation hot and frequent fomentations. At the end of twenty-four hours gentle massage can be applied to the thigh muscles and the articulation and passive movements can be begun. In performing passive movements, it is essential that the patient should help the surgeon in every movement. The patient's muscles will then be acting with and not against the surgeon, and there will be no fear of excessive movement.

In a very severe sprain, this treatment should be continued for three or four days, when the patient can begin to walk. At the end of a week massage of the muscles and joint can be continued, and he should perform regular muscular exercises, in one of three ways—by the method of resisted exercises, by means of a weight and pulley attached to a wall, or with the use of Cheatle's dumb-bell. He should begin to exercise his knee-joint and thigh muscles. The exercises may make the joint a little painful and even make it swell a little more, but he should go on with them and apply hot fomentations when these complications arise.

In the chronic case, in which sprains of the knee are of frequent occurrence and easily induced seen for the first time, the muscles will be found atrophied, to a marked degree, and any attempt on the part of the patient to use his joint will cause constant recurrence of fluid and pain, until, under proper treatment, his muscles regain their normal size and tonicity.

At this stage splints and bandages are useless. The patient must put no weight on the limb, except for ordinary necessities of life, for three weeks, and must perform regular specified exercises with a weight and pulley, or the foot dumb-bell. These exericses are more useful than massage of joint and muscles, but it may be continued. Unless regularly performed, the specified exercises are useless. After three weeks' work, the patient may take gentle walking and running exercises. After six weeks he can, as a rule, begin to do extra work, such as tennis, riding or golf, all in easy stages, and to stop on this side of fatigue, but the regular exercises must be continued for at least a year. The exercises are devoted mainly to the improvement of the flexors and extensors of the knee.

39. **Brachial Neuritis.**—For pain, especially that associated with rheumatic or gouty cases, the following mixture is recommended by Howell: ℞ Antipyrin, gr. v-x; sodium salicylate, gr. x; caffein citrate, gr. v; aromatic spirits of ammonia, ʒ ss; chloroform water, ad ℥ ss. For the arteriosclerotic cases a mixture containing nux vomica and potassium iodid is often

very effective. Aceto-salicylic acid, gr. xv, is often very useful in the milder cases.

Kataphoresis Howell has found of the very greatest use in relieving pain and shortening the attack in cases of rheumatic or gouty origin. The drugs introduced are either 2 per cent. sodium salicylate or iodin. For the former the kathode is used, for the latter the anode. It is preferable to have the arm treated by hot air or hot compresses before ionization is begun; the object of this is to get the skin thoroughly moist, thus enabling large currents to be used painlessly, whereby the entrance of the iodin or salicylic acid ions is facilitated. The limbs should be kept warm by being wrapped in wool and the weight of the arm supported by a sling.

Should muscular weakness and wasting occur, it is of the utmost importance that the paralyzed muscles should not be stretched either by the weight of the limb or by contraction of their antagonists. This is prevented by putting the limb in a light splint, one made of celluloid being quite suitable for the purpose. The nutrition of the muscles must be maintained by massage and the use of the electric current, in the form of galvanism or faradism, according to the response obtained *from the muscles on testing with one or the other.*

**45. Treating Acute Pneumonia.**—The formation of fibrin, in Curtin's opinion, enhances the danger and should, if possible, be controlled or limited. With this end in view the salts of potash and ammonia are indicated early in the disease. The *citrates and iodids of potash are especially useful, owing to* their action in reducing the apoplasmic state of the blood. They also promote diuresis by abstracting water from the tissues into the blood-stream, thereby tending to diminish edema by draining off any excess of water from the tissues.

**47. Thermoprecipitin Reaction in Diagnosis of Pulmonary Tuberculosis.**—Eighty-six sputa were examined by Fraser; 42 were definitely tuberculous and 39 were non-tuberculous (clinically and bacteriologically); 5 were of doubtful diagnosis. Of the 42 tuberculous sputa, 36 gave a positive reaction. that is, 86 per cent. Of the 39 non-tuberculous sputa, 27 gave a negative reaction, that is, 69 per cent.; 1 gave a doubtful reaction. Of the 5 cases of doubtful diagnosis, 4 gave a positive and 1 a negative reaction. In 5 cases which were definitely tuberculous, but where no tubercle bacilli could be found in the sputum, a positive reaction was obtained. Fraser believes that the reaction appears to have some clinical value; a negative result speaks strongly against a diagnosis of tuberculosis.

### Annales de Gynécologie et d'Obstétrique, Paris

*February, XLI, No. 2, pp. 65-128*

50 Hysterectomy without Opening the Uterus to Deliver Living Child R. Casalis and R. Lecocq.
51 Changes in the Blood in Anemia from Obstetric Hemorrhage. V. Wallich and P. Abrami.
52 *Trendelenburg Position to Arrest Obstetric Hemorrhage. G. Fieux.
53 *Fate of Grafted Ovaries. (Etude anatomique de quatre greffes ovariennes chez la femme.) T. Tuffier and Vignes.
54 Inflammation as Factor in Cystic Disease of the Breast. [illegible] maladie kystique du sein.) P. Masson.
55 [illegible] lopment of Hypogastric Plexus and Its

**52. Trendelenburg Position to Arrest Threatening Obstetric Hemorrhage.**—Fieux applied this measure to combat symptoms of ischemia of the brain in a case of profuse obstetric hemorrhage, and found that it not only improved the circulation in the brain, but arrested at once and permanently the tendency to hemorrhage. Since then he has applied it systematically in four other cases, improvising a support for the purpose by working a chair, face down, under the mattress, the back of the chair under the patient's back. He gives a diagram to show the mechanical effect of the change to this position. The blood which has accumulated in the uterus and vagina falls back by its own weight when the pelvis and thighs are thus abruptly elevated, and this heavy column of blood acts as a tampon to plug the bleeding surface, the source of the hemorrhage, while its sudden impact is liable to start up normal uterine contractions. Even when the uterus develops atony again, the hemorrhage does not start up anew, as it is usually a vein that is bleeding, and in this position the pressure in the veins is reduced to zero even in the vena cava.

**53. Engrafted Ovaries.**—Tuffier and coworkers describe the histologic findings in four ovaries that had been transplanted years before and were removed at another operation or after death. Of the twenty women treated by transplanting of ovaries, nineteen menstruated thereafter for a few months, some for three or five years. The clinical course in these cases confirms the assumption that the disturbances of the menopause are not due to the loss of the internal secretion of the ovaries, but to the suppression of menstruation, that is to say, to the loss of the concerted action of the genital gland and the uterine mucosa. They state that since 1906, 141 women have been treated by ovary grafting with or without removal of all or part of the uterus, but they do not go into further details.

### Annales de Médecine, Paris

*February, I, No. 2, pp. 129-252*

56 Experimental Superinfection with Tuberculosis in the Guinea-Pig. (Etude des phénomènes allergiques cutané et pulmonaire.) F. Bezançon and H. de Serbonnes.
57 *Classification of Diabetes Mellitus. M. Labbé.
58 Meningeal Hemorrhage in Purpura. G. Guillain.
59 Primary Splenomegaly with Cirrhosis of the Liver. (Maladie de Banti et anémie splénique.) M. L. Kindberg.
60 *Tubercle Bacilli in the Blood of No Importance for Diagnosis,* Prognosis or Prophylaxis. L. Bernard and Others.

**57. Classification of Cases of Diabetes.**—Labbé says that the old distinction of "fat" and "thin" diabetes, although not strictly scientific, yet harmonizes better with the clinical phenomena than anything else he knows. The diabetes may be accompanied by insufficient assimilation of nitrogen, in which case the glycosuria is both alimentary and organic and the sugar is derived from carbohydrates, albumin and fat. When the assimilation is normal, the glycosuria is derived from the carbohydrates, while in the cases between these extremes, the denutrition is moderate and can be compensated for in the food. He gives the details of several cases of these three types of diabetes without and with denutrition and the intermediate cases, tabulating the metabolic findings with all the particulars. They confirm anew his contention that diabetics not only lose an abnormal proportion of nitrogen, but that the metabolism of nitrogen is abnormal. Diabetic coma is the direct result, he says, of this *trouble du metabolisme azoté.*

The majority of diabetics remain in the stage of abnormal sugar regulation alone, while others pass rapidly into the stage of nitrogen denutrition. The danger in the former is from accumulation of sugar in the organism, with hyperglycemia and its symptomatic train of evils. The danger in the other is from progressive debility from the nitrogen denutrition, in addition to the danger from the hyperglycemia, and the resulting acidosis. *All that is necessary in the first type is to combat* the hyperglycemia by reducing intake of carbohydrates and the ration in general. In the other type, the nitrogen denutrition must be combated with abundant food, warding off acidosis by substituting vegetable albumin for animal albumin. The danger from impending acidosis is so much greater than that from the hyperglycemia, that the latter has to be disregarded in this stage.

### Annales de Médecine et Chirurgie Infantiles, Paris

*March, XVIII, No. 5, pp. 141-172*

61 Sugar Aids Digestion of Raw Milk. (Influence du sucre pour l'utilisation physiologique du lait cru par le nourisson.) G. Variot and L. Monod.
62 Coal Tar in Treatment of Eczema. G. Thibierge.

### Archives des Maladies du Cœur, etc., Paris

*March, VII, No. 3, pp. 161-224*

63 Nervous Phenomena with Extrasystoles. (Accidents vertigineux ou syncopaux liés à l'extrasystolie auriculaire.) L. Gallavardin.
64 Audible Signs of Heart Block. (Contractions auriculaires perceptibles à l'oreille dans le block total. Leur signification comme galop du block.) L. Gallavardin.
64 Bigeminal Pulse from Atropin in Arythmia from Extrasystoles. Rythme couplé provoqué par l'atropine.) D. Danielopolu.
66 Bigeminal Pulse from Sodium Salicylate. D. Danielopolu

### Archives Générales de Chirurgie, Paris

*February, VIII, No. 2, pp. 129-256*

67 Rupture of Tendon in Connection with Joint Disease without Effusion. (Rupture intracapsulaire du tendon du long biceps brachial.) J. Flèvez.

68 *Pus in Double Uterus or Vagina. (Pyométrie et pyocolpos dans les cas de duplicité du canal génital.) C. Moreau.
69 *Primary Curvature of the Spine in the Neck Not Due to Trauma or Tuberculosis. P. Mauclaire.

68. **Suppuration in Double Uterus or Vagina.**—Moreau calls attention to the puzzling cases of retention of blood, secretions or pus in a walled-off part of the uterus or vagina owing to biseptus, arcuatus, bicornate, bipartitus or other unsuspected deformity of the uterus or vagina. He reports the case of a woman who had had an extremely fetid vaginal discharge for six years, ever since her marriage. There were occasional periods of pain, and during these spasms the discharge was less profuse. The pain was sometimes so severe that morphin was required, and it always localized in the lower abdomen, toward the right side. The discharge amounted at times to a glassful of pus during the day. The pus did not come from the uterine cervix, but oozed from a crevice in the depths of the vaginal culdesac on the right. No relief had been obtained from two previous vaginal operations, but a laparotomy revealed the cause of the trouble to be suppuration in the smaller part of a double uterus, the other half being sound. The minute crevice seen in the vagina from which the pus oozed must have been the only communication between this portion of the bifid uterus and the vagina. He adds from the literature the brief details of sixteen similar cases of pyometra or pyocolpos in a duplex organ, all the patients being cured by a more or less complete hysterectomy or other operative measures as indicated.

69. **Non-Traumatic and Non-Tuberculous Curvature of the Spine in the Neck.**—Mauclaire has encountered two of these cases, one in a boy of 17. The curvature developed in the course of a month, without pain or tenderness; the spine seemed to be twisted on itself and there were signs of paraplegia. The diagnosis by exclusion was deforming rheumatism limited to this portion of the spine, which was also the presumptive diagnosis in the second case. This patient was a man of 45 without pathologic past. No benefit was derived in this case from plaster casts, and the condition has persisted about the same for two years. In the younger patient a plaster cast with neckpiece prevented further curvature and gradually the condition improved, the symptoms of paralysis subsiding. It is important, of course, that these orthopedic appliances should be applied at the earliest possible moment in such cases.

### Archives Générales de Médecine, Paris

*February, XCIII, No. 2, pp. 101-192*

70 Industrial Dust as Factor in Bronchopulmonary Disease. F. Heim and E. A. Lafont.
71 Nascent Iodin in Ear and Throat Work. (L'enfumage iodé en oto-rhino-laryngologie.) A. Maurice.

### Archives Mensuelles d'Obstétrique et de Gynécologie, Paris

*February, III, No. 2, pp. 161-256*

72 *Autografts of Human Ovaries. de Rouville.
73 Causes of Abnormal Embedding of Ovum. (Etiologie des grossesses tubaires.) L. Schil.
74 Obstetrics in Northwest Europe in Eighteenth Century. (Mathias Saxtorph et ses contemporains.) E. Ingerslev.

72. **Transplanted Ovaries.**—De Rouville summarizes nine cases of various gynecologic affections which he treated by transplanting one or both ovaries into the abdominal wall; he tabulates the details finally for comparison. Actual benefit seems to have been realized only in one case, dubious in another, and good but briefly transient in a third All the grafts became atrophied sooner or later Notwithstanding these meager results he is confident that the principle is a good one and that perfected technic will improve the results. He noted in some cases that the engrafted ovary became swollen, tender and painful at the periods corresponding to the dates of the menses. these changes commencing as a rule from five to twelve days before the appearance of the menses. In six cases menstruation returned, but it was very irregular in some and ceased completely after a single menstruation in one case thirteen months after the ovary had been transplanted and after five months in another. Symptoms of the artificial menopause were apparent in all, but very mild, and milder in those whose menstruation continued.

### Bulletin de l'Académie de Médecine, Paris

*February 24, LXXVIII, No. 8, pp. 271-295*

75 Gunshot Injuries of Vessels and Nerves. (Les anévrismes e les blessures des nerfs en chirurgie de guerre.) Laurent and E. Delorme.
76 Experimental Surgery of the Heart Valves. T. Tuffier.

### Bulletins de la Société de Pédiatrie, Paris

*February, XVI, No. 2, pp. 73-116*

77 Vaccine Therapy of Typhoid. J. Comby.
73 Scapular Tic. N. Wilbouchewitch.
79 Sugar Aids Digestion by Infants of Raw Milk. G. Varlot and L. Monod.

### Journal de Chirurgie, Paris

*February, XII, No. 2, pp. 145-280*

80 Operation on Costal Cartilage to Mobilize Chest Wall. (Chondrectomie mobilisatrice dans les déformations thoraciques accompagnées de troubles respiratoires.) C. Lenormant.
81 *Tuberculosis of Costal Cartilages. S. Mercadé.

81. **Tuberculosis of Costal Cartilages.**—Mercadé reports six cases of a cold tuberculous abscess in a costal cartilage, and gives an illustrated description of the technic with which he successfully removed the part affected. The patients were men between 35 and 60 and one woman of 25. The abscess did not develop downward, but worked forward through the interstices between the muscle fibers. When the tuberculous process assumes the form of a diffuse infiltration, differentiation is difficult; in one such case the trouble had been diagnosed as a diaphragmatic pleurisy. After the operation the patient must be examined carefully every second day to learn whether there is not an accumulation of serous fluid and blood if the operation required cutting into bone tissue. The lips of the U flap can be separated a trifle and the fluid squeezed out and then resutured. This is sedom required more than once or twice at most.

### Journal de Médecine de Bordeaux

*March, LXXXV, No. 9, pp. 141-152*

82 Sarcoma of the Thyroid. Chavannaz and Loubat.
83 Arrest of Traumatic Glaucoma in Girl of 12 by Trephining Eyeball. (Buphtalmie secondaire traitée par la trépanation d'Elliot.) H Fromaget.

### Lyon Chirurgical

*March, XI, No. 3, pp. 221-312*

84 More Frequent Use of Gastrectomy Recommended for Gastric Ulcer. X. Delore and P. Santy.
85 *Resection of the Auriculotemporal Nerve to Inhibit Parotid Secretion. G. Aigrot.
86 *Surgical Aspects of Aerophagy. R. Leriche.

85-86. **Aerophagy: Dangers and Treatment.**—Leriche regards the swallowing of air as a frequent cause of acute postoperative dilatation of the stomach and therefore important from a surgical standpoint. It may also cause chronic dilatation of the stomach and lead to a mistaken diagnosis of gastric ulcer. It has always been regarded as a tic or a form of hysteria, but he believes it is often due to excessive salivation, and is therefore susceptible of surgical treatment. If the secretory fibers supplying the parotid in the auriculotemporal nerve are cut, the hypersalivation and with it the swallowing of air are ended. He describes a case in which he successfully performed this operation. In the preceding article Aigrot also describes a successful operation of the same sort for the same reason.

### Lyon Médical, Lyons

*March 1, XLVI, No. 9, pp. 453-520*

87 Müller's Method of Determining the Degree of Hypertrophy of the Right Heart in Chronic Pulmonary Disease. J. Bret.
88 *Ether Dressings in Gynecology. R. Condamin.

88. **Ether Dressings.**—Condamin recommends the application to the abdomen in inflammatory edema of the pelvis, subacute phlegmon, and similar conditions, of cotton pads saturated with ether and covered with more cotton and oiled silk. These ether dressings have a sedative action, reduce pain and the absorption of edema is promoted. An ether tampon may also be applied inside the vagina, but this is somewhat painful. He has been using for several years these ether-soaked compresses over a large area, and with constantly increasing satisfaction. The ether has to be continuously applied and in no small dosage.

### Revue Pratique d'Obstétrique et de Gynécologie, Paris

*February, XXII, No. 2, pp. 33-60*

89 Pelvic Neuralgia of Genital Origin in Women and Treatment by Mineral Waters. M. de Lépinay. Concluded in No. 3.
90 Ovarian Tumors Interfering with Delivery. P. Puech and J. Vanverts.
91 Phenomena of Shock after Normal Delivery. Fabre and Bourret.

### Presse Médicale, Paris

*XXII, Nos. 17-19, pp. 161-192*

92 Influence on Heart Action of Pressure on the Eyeball, of Nitrite and Atropin. (Diagnostic des bradycardies totales d'origine nerveuse. L'automatisme ventriculaire provoqué par la compression oculaire et l'atropine dans les bradycardies totales.) M. Ketzetakis.
93 Operations on Heart Valves. (Etude anatomo-pathologique et expérimentale sur la chirurgie des orifices du cœur.) A. Carrel and T. Tuffier.
94 Protozoa in Human Pathology. L. Lagane.
95 Gastric Cancer of Intestinal Type. R. Grégoire and P. Masson.
96 Subperitoneal Nephrectomy through Transverse Incision in Front. L. Bazy.

### Semaine Médicale, Paris

*March 4, XXXIV, No. 9, pp. 97-108*

97 Hysterectomy Sparing the Ovaries. R. de Bovis.

*March 11, No. 10, pp. 109-120*

98 *Large Syphilitic Tumors of the Liver. F. Lejars.

98. **Large Syphilitic Tumors in the Liver.**—Lejars relates from his own experience and that of others a long series of cases in which the symptoms indicated gall-bladder or stomach or duodenum disease or cancer in the liver, but which proved to be merely an isolated syphilitic lesion. Even when syphilis is known, there is, of course, the possibility that any of the above may be associated with it, so that an exploratory operation is often justified. This is especially necessary as tentative specific treatment might be directly injurious with gastric malignant disease. Another argument in favor of an exploratory operation is that it may be possible to break up adhesions, etc., causing functional disturbance. Syphilitic tumors in the liver may interfere with the functioning of the whole biliary apparatus and may induce inflammation in adjoining tissues. If the syphilitic tumor is found pedunculated and easily removable, and not much benefit has been derived from specific treatment, it is well to consider the advisability of removing it, but unless conditions are exceptionally favorable this had better not be attempted. In the cases in which it has been done the gumma generally had been mistaken for a cancer.

The syphilitic tumor is liable to project downward or backward, and in several of the cases related the operation was done from the rear for a supposed wandering and painful kidney. In one case even when the liver was opened up, the trouble was taken for gastric cancer spreading to involve the liver. The bright side to all these mistakes in diagnosis is the almost invariable complete recovery under specific treatment. Some of the patients improved under the influence of the operation alone. This improvement refuted the presumptive diagnosis of inoperable cancer, and a supplementary course of treatment for syphilis speedily completed the cure. In some of the cases the Wassermann reaction was negative but the patients recovered under specific treatment as effectually as those giving a positive response.

### Beiträge zur Klinik der Tuberkulose, Würzburg

*XXX, No. 1, pp. 1-226. Last indexed March 21, p. 972*

99 *The Leukocytes and the Viscosity of the Blood. A. Gullbring.
100 *Pleural Eclampsia. (Zur Pathogenese der pleuralen Eklampsie bei Anglegung eines künstlichen Pneumothorax.) W. Orlowski and L. L. Fofanow.
101 *Albumin in the Sputum. (Die quantitative Eiweissbestimmung im Sputum.) O. Melikjanz.
102 Comparison of Different Tuberculins. Holten and V. Kollert.
103 *Tuberculous Pericarditis. W. Wolff.
104 *Study of Tuberculosis Death-Rate. (Vergleichende Untersuchung über Tuberkuloseverbreitung in zwei verschiedenen Bezirken Badens.) K. Dörner.
105 Serodiagnosis of Tuberculosis. (Erfahrungen mit dem Abderhaldenschen Dialysierverfahren bei der Tuberkulose.) F. Gumpertz.
106 Inunctions of Attenuated Tuberculin for Wholesale Treatment and Prophylaxis for Tuberculosis. (Ueber eine Vereinfachung der spezifischen Therapie für die spezifische Tuberkulose-Bekämpfung in grösserem Stil.) Petruschky.

99. **The Leukocytes Bear Some Relation to the Viscosity of the Blood.**—Gullbring reports extensive research the results of which show that there is a regular ratio between the number of the polymorphonuclear leukocytes and the viscosity of the blood, the latter increasing as the number of these cells grows larger. Sixty-six pages are devoted to the details of his tests in 201 patients, tabulated under various headings, as also the findings in ten cases after injections of sodium cinnamate and thirteen others after injection of other drugs, also in eleven syphilitics, and in some patients with nephritis, exophthalmic goiter, leukemia or pernicious anemia, and after injection of gelatin and on different diets. Gullbring compares his findings with those of other investigators, and concludes with a bibliography of eighty-five titles.

100. **Threatening Disturbances During Artificial Pneumothorax.**—This communication from Kasan relates that during injection of the gas to make an artificial pneumothorax in a woman of 26 a train of symptoms developed such as have been described in the literature as reflex pleural eclampsia. They included convulsions, unconsciousness, repeated vomiting, dilatation of the pupils and disturbances in respiration and circulation and paresis of certain groups of muscles. These phenomena indicate a sudden increase in the pressure on the brain with traumatic injury of certain nerve terminals, so the trouble undoubtedly must be due to some organic disturbance in the brain. Only embolism of the cerebral vessels can explain it, and he thinks that the embolism was probably of the gas. The woman recovered, but two months later there was still some paresis. It is possible that abortive forms of such phenomena may be of a reflex nature, especially those with laryngospasm, slowing of the pulse, vertigo, pallor, etc., but when there is even transient paresis, gas embolism with minute amounts of gas seems the more probable explanation.

101. **Albumin in the Sputum.**—Melikjanz calls attention to the diagnostic importance of quantitative estimation of the albumin in the sputum, applying the Heller test and watching the interval before the albumin ring appears. He gives the technic for this quantitative method and the findings in fifty patients repeatedly examined. It shows active pulmonary tuberculosis even in the incipient stage, and the fluctuation in the amount of albumin runs parallel to the healing process or the aggravation of the disease. The specific gravity of the sputum is independent of the amount of albumin and character of the pulmonary disease.

103. **Tuberculous Pericarditis.**—Wolff gives the details of 21 cases with necropsy in all but 5; 8 patients were over 60, and the tuberculous pericarditis was not accompanied by any other tuberculous affection or merely by signs of old healed processes in the apices. The patients under 60 all had other tuberculous affections. In 5 cases the pericarditis had caused no symptoms during life. The necropsy findings are liable to be misunderstood by those without much experience in this line. A tuberculous origin should be suspected in all cases of fibrinous pericarditis in the elderly not to be explained in other ways. The prognosis is not absolutely bad; it may heal by the growing together of the sheets of the pericardium with the eventual calcification of the synechia.

104. **Comparative Death-Rate from Tuberculosis in Two Baden Districts.**—Dörner has been studying conditions before and after the industrial development of two large districts with a population of about 20,000 each. The data are presented in a dozen tables; all testify anew to the way in which tuberculosis is fostered by unfavorable environments, and that women feel the effect of this more than men. Also that the campaign against tuberculosis in children is the most important means to reduce the general death-rate among them.

### Berliner klinische Wochenschrift

*March 2, LI, No. 9, pp. 385-432*

107 Experimental Research on Small-Pox Virus. (Mitteilungen über experimentelle Vaccine.) H. A. Gins.
108 Doughy Infiltration of Mucosa of Urethra and Bladder as Symptom of Thyroid Insufficiency. (Zur Diagnose der Hypothyreose.) H. Stern (N. Y.).
109 The Blood in Diabetes. (Morphologische Eigenschaften des Blutes bei Diabetes mellitus.) M. Halpern.

110 *Technic for Feeding Children Unusually Large Numbers of Calories. (Mastkuren im Kindesalter.) S. Engel.
111 Serum Sickness. C. R. Schulz. Commenced in No. 8.
112 Cotton Dressings. (Moderne Verbandwatte.) W. Zänker and K. Schnabel.

**110. Extra Nourishing Food for Children.**—Engel places great reliance on cream in the forced feeding of children, as *this supplies large amounts of calories in a concentrated form.* He estimates that half a liter of 15 per cent. cream represents 800 to 900 calories. The secret is to have the daily ration of cream taken all at one time. During the day the child is fed as usual, but two or three hours after supper, when the child is already in bed, he drinks the glass of cream, and takes it with relish. A boy of 10, for example, requiring about 1,250 calories, can take half of them in this form. Repose is an indispensable factor in assimilation and utilization of the maximum proportion of nourishment but this is too often neglected in the forced feeding of children. They should recline all the time or at least three or four hours, all preferably out of doors. Nervous, restless children can be kept in a darkened quiet room; if this alone does not suffice, he does not hesitate to give some mild sedative during the first day or so.

### Correspondenz-Blatt für Schweizer Aerzte, Basel

*February 28, XLIV, No. 9, pp. 257-288*

113 Fertilization and Embedding of Human Ovum. (Einiges über Befruchtung und Einbettung des menschlichen Eies.) H. Mayer-Ruegg.

*March 7, No. 10, pp. 289-320*

114 Recent Progress in Our Knowledge of Infections (Erforschung der Infektions-Krankheiten.) W. Silberschmidt.
115 Chronic Malaria. F. Schwyzer.

### Deutsche medizinische Wochenschrift, Berlin

*February 26, XL, No. 9, pp. 417-472*

116 *Treatment of Hemoptysis. (Lungenblutung.) Grober.
117 Eugenics and Gynecology. J. Veit.
118 Successful Removal of Tumor in the Pancreas. W. Körte.
119 Ferments in the Blood. (Blutfermente des gesunden und kranken Organismus und ihre Bedeutung für die Physiologie und Pathologie.) L. Pincussohn.
120 Reply to Article Asserting Serodiagnosis of Pregnancy is Neither Specific nor Reliable. E. Abderhalden and L. Michaelis.
121 *Diphtheria in the School.* A. *Gottstein.*
122 Specific Potassium-Gold Cyanid Reaction in Serum in Syphilis and Cancer. E. Wiener and A. v. Torday.
123 *Simple Quantitative Test for Urea in Urin. A. Hahn and J. Saphra.
124 *Compound Splintered Fracture of the Skull. (Zur Behandlung komplizierter Splitterbrüche des Schädeldaches.) E. Görs.
125 *Prostatectomy by Wilms' Technic.* D. *Kulenkampff.*
126 *Syphilis an Internal Disease. K. Stern. Commenced in No. 8.

*March 5, No. 10, pp. 473-520*

127 Treatment of Cholera Infantum. (Behandlung des akuten Brechdurchfalls der Säuglinge.) Tobler.
128 Etiology of Catarrhal Enteritis in Infants. (Säuglingsdarmkatarrh.) K. Baerthlein *and* W. Huwald.
129 *Internal Disinfection. R. Roosen.
130 *Detection of Metals in Organs. (Methode zum Nachweis feinster Metallablagerungen in den Organen.) J. Voigt.
131 Biologic Research with Colloidal Silver. J. Voigt.
132 *Deviation of Complement with Chemicals. K. Hara.
133 Bile in Culture Medium. (Zusatz von Rindergalle zum Löfflerschen *Diphtherienährboden.*) E. Büsing.
134 Biologic Research on Tuberculin. (Experimentelle Untersuchungen über Tuberkulin und Tuberkulose.) H. Aronson.
135 Tubercle Bacilli in the Blood. C. Moewes and E. Rautenberg.
136 Improved Technic for Bang's Test for Sugar in the Blood. N. Roth.
137 Paratyphoid Epidemic Traced to Flour. H. Langer and Thomann.
138 Care after Operation for Pyloric or Duodenal Ulcer. F. Ehrlich.
139 *Death in Consequence of Administration of Friedmann's Remedy for Tuberculosis. (Ein Todesfall infolge von Anwendung des Friedmannschen Tuberkulosemittels.) O. Vulpius and C. Laubenheimer.

**116. Hemorrhage from the Lungs.**—Grober says that the mere aspect of the blood will generally reveal where it comes from; if from the gums, there is no coagulation and it is diluted with saliva, and if from the nose or throat, mucus comes with it. *Blood from the lungs is usually thoroughly* mixed with the sputum and is bright red and foamy. When this is swallowed and then vomited, fresh foamy blood generally comes with it, showing that it is not true hematemesis. To keep the body absolutely and constantly still is the first and main indication, and he insists that the patient should be kept in bed for a week or ten days after actual hemoptysis, even if there are no other symptoms. Provision must be made for the escape of the blood to ward off danger of suffocation, he lost two patients from this cause, children of 9 and 12. This danger is imminent when the patient is asleep or unconscious, and this should be remembered when giving sedatives.

The patient often imagines the amount of blood lost as far above what it really is; he must be tranquilized at all costs, and all persons that cannot be relied on must be excluded from the room whether the hemorrhage was slight or severe.

The family can be reassured that with tuberculosis *hemoptysis is extremely rarely directly fatal.* The patient should not speak, but use pencil and pad; sign language is liable to be misunderstood and excite him still more. Strapping the chest and sand bags may do more harm than good, but an ice bag or its equivalent soothes and steadies. It should be suspended to relieve the chest of its main weight. Inspection of the skin of the chest and the local sensations may reveal the site of the bleeding. The patient should not be disturbed for a thorough examination. The food should not require chewing, and if even swallowing is dangerous, a scrap of ice can be placed in his mouth, possibly dropping a little lemon juice on it. The water from the melting ice can run out of the mouth. Milk and sweetened water and the blood that may have been swallowed help to nourish the patient. Stimulants, alcohol, coffee, tea, should be scrupulously avoided and for some time afterward. Heart tonics tone up the circulation and thus may start up the hemorrhage. He has had this occur twice under digitalis. Some coughing is indispensable to expel the blood from the bronchi even *although it brings the danger of starting up the hemorrhage* anew. Ergot, hydrastis and atropin have each rendered him good service, and he knows of three cases in which a tablespoonful of salt dissolved in a little water arrested pulmonary hemorrhage, twice in one case, but he has never given it himself. He has also witnessed a similar effect from intravenous injection of 5 and 10 c.c. of a 5 or 10 per cent. solution of salt. No means is known to act directly on the bleeding spot, but a subcutaneous injection of reliably sterilized gelatin seems the nearest approach to this at our disposal, and there is more general confidence in this than in any other styptic.

**123. Test for Urea in the Urine.**—Hahn and Saphra found extremely reliable Marshall's simple method to determine the proportion of urea in the urine. The alkalinity of the urine is first ascertained; then a certain ferment is added and the alkalinity is determined anew after a certain interval. The difference between the two figures is the index. The ferment is derived from the soy bean.

**124. Splintered Fracture of the Skull.**—Görs reports seven cases in which the skull had been extensively fractured; in six he patched the defect by reimplanting the pieces of bone, and they healed in place without inflammation. All the patients regained their former earning capacity and there were no epileptiform seizures in any instance. Two patients were boys of 12 and 16; the others men of 20, 28 and 42 to 71. The injury could be treated at once and there was no infection except in one case in which serious meningitis had already developed, to which the patient succumbed after removal of the foreign body and drainage. The gaps in the skull ranged from the size of a silver quarter to that of the palm of a man's hand. The frontal bone was involved in four, the vertex in three. Brachial monoplegia had already developed in two of the latter group.

**126. Long Latent Stage in Syphilis.**—According to Stern's experience, in fully 50 per cent. of all cases of syphilis, the disease develops without any secondary manifestations; that is, the syphilis runs its course exclusively as an internal *disease after the primary lesion. This is equivalent to saying* that less than 50 per cent. make any attempt to get proper treatment, as it is generally the skin and mucosa affections which drive syphilitics to the doctor. The absence of external manifestations may therefore be regarded as a misfortune, *especially if we regard them as protective* reactions. No history of secondary manifestations can be found in a large proportion of the cases of tabes and paralysis. The fact that the syphilis gives no signs of its presence during long years after the primary chancre is by no means a sign that the syphilis has been "cured."

129. **Internal Disinfection.**—Roosen relates encouraging results in series of mouse tumors which melted away, as it were, under the influence of subcutaneous or intravenous injection of methylene blue, followed forty-eight hours later by a subcutaneous injection of calomel. In his latest series, sarcomas and carcinomas as large as a bean or nut subsided completely in sixteen of the seventy mice. The tumor softened up more or less in all the animals. The aim is to give the mercury only when the methylene blue which has not entered into combination with the tissues has been expelled from the body. The tint of the urine will show when it is being cast off.

130. *Determination of Finest Particles of Metal in Tissues.*—Voigt says that important information in regard to the presence of metals in organs can be obtained with the ultramicroscope applied to sections. The particles catch the light in a different way and show up distinctly.

132. **Chemicals for Antigens in Biologic Tests.**—Hara obtained positive responses with the deviation of complement test in 48 of 56 cancer cases using phenolphthalein for the antigen. In 86 cases with positive Wassermann reaction the tests with this chemical and also with maltose were constantly negative. The tests with these two substances were also applied to 385 patients with various other affections and only 4 positive responses were obtained with maltose and 8 with phenolphthalein. Maltose is not quite as specific as the latter, but either may serve as a useful control in applying the biologic test. Other chemicals were tried but none showed such efficacy as these two.

139. *Fatality Following Use of Friedmann's Remedy for Tuberculosis.*—This communication from Professor Vulpius and Privat-Docent Laubenheimer, both of Heidelberg, reports a fatality following application of Friedmann's remedy for tuberculosis, and states further that in only two out of thirteen ampules of the remedy examined was the turtle bacillus found in a pure culture. All the other ampules were contaminated with bacilli of different kinds, including a *Staphylococcus aureus* which proved very virulent on inoculation of animals. Forty-six patients had been given the treatment, the remedy obtained directly from the manufacturers, thirty-one by intramuscular injection; fifteen by both intramuscular and intravenous injection, all strictly according to Friedmann's directions. There was a febrile reaction in all except in one patient. In some the fever was high and the general phenomena were pronounced. One of the patients died and another was saved only by the greatest efforts and good fortune. This latter patient was a girl of 18 with a tuberculous process in the knee. After a pronounced reaction with fever, chills, headache and palpitations, severe collapse developed the third day but the patient gradually recovered.

In the fatal case the patient was a man of 31 with a tuberculous focus in the epididymis and ribs. The night after the *Simultan-Injektion* he had chills and fever to 41.2 C. —over 106 F.—and pulse of 140. Coma and death followed in less than forty-eight hours. The clinical course suggested acute sepsis with paralysis of the heart. In eight of the thirty-one patients given intramuscular injections, infiltration followed sooner or later, with a fistula which lasted for several weeks in a number of cases.

Vulpius began to apply this method of treatment last November, and states that the period of observation is still too short for a decisive judgment, but to date he has not witnessed in a single instance any change for the better which he can ascribe to the new remedy. The toxic phenomena in his cases and the high fever with the intramuscular plus intravenous injections are amply explained, he says, by the bacteriologic findings mentioned above. They warn of the necessity for extreme caution with the remedy. These findings, he adds, will deter him from ever injecting the remedy directly into the circulation again, or at least not until it is officially standardized.

### Deutsche Zeitschrift für Chirurgie, Leipsic

*February, CXXVI, Nos. 5-6, pp. 429-634*

140 *Intracranial Injections of Alcohol in Trigeminal Neuralgia. F. Härtel.
141 *Family Tendency to Polyps in the Intestines. W. Thorbecke.
142 Invagination of the Intestine and Spastic Ileus. A. Fromme.

140. **Alcohol Injections for Neuralgia.**—Härtel's report of his experiences fills 123 pages, setting forth the details of twenty-five cases of severe chronic trigeminal neuralgia in which he injected alcohol to block the nerve just before it pierced the skull. He found it far more effectual than any procedure outside the skull, but states that while the results are on a par with those of gasserectomy, it is free from the dangers of the latter, although it shares with the latter the liability to consecutive inflammation of the cornea. This can be warded off, however, he says, by careful after-treatment. He adds that it is necessary to make the injection in such a way as to block the whole ganglion. Anatomic conditions interfered to prevent introducing the needle into the oval foramen in six of the eighty-two cases in which he has applied this technic for this purpose or for local surgical anesthesia or for diagnostic puncture of the base of the brain with meningitis or for intracranial injection of antitetanus serum. Care afterward to ward off keratitis should be particularly scrupulous with diabetics.

141. **Familial Polyposis.**—Thorbecke has encountered 3 cases and has compiled 19 from the literature since 1908. This brings to 78 the number of cases of intestinal polyposis on record; 53 of the patients died, including 32 with cancer. The outcome is not known in 7 cases; 5 patients are known to be living. Treatment can generally be only palliative on account of the large number of polyps, as a rule. In the 10 cases in which the accessible polyps were cut off, 3 of the patients died; 2 had recurrence with malignant features four or six years later; 3 others were benefited, but only 1 patient seemed to be permanently cured. An artificial anus to relieve the gut below from irritation was made in 8 cases but 3 patients died and only slight and transient benefit was realized in the other cases. Injection of astringents gives but slight and transient relief if any.

### Medizinische Klinik, Berlin

*March 1, X, No. 9, pp. 357-400*

143 *Calcium Given with Iodids and Bromids Wards Off By-Effects. E. Frey.
144 Duodenal Ulcer. C. Hart.
145 Roentgenoscopy in Gastro-Intestinal Disease. (Röntgendiagnostik der Verdauungskrankheiten in klinischer Bewertung.) A. Albu.
146 Thermopenetration. A. Laqueur.

143. **Prevention of Iodism and Bromism.**—Frey relates experiences which confirm the antagonistic action between calcium and the iodids and bromids. It can be instructively studied on muscle fibers, the latter drugs causing contractions in muscle fiber immersed in them while the contractions cease when calcium is added to the fluid. It seems wise, therefore, he says, to give the preference in therapeutics to calcium iodid and bromid.

### Münchener medizinische Wochenschrift

*March 3, LXI, No. 9, pp. 457-512*

147 *Color Test for Uric Acid in Blood and Urine. (Ueber kolorimetrische Bestimmungsmethoden.) Autenrieth and Funk.
148 *Peptolytic Ferments in Cells and in the Blood. M. Mandelbaum.
149 *Specificity of the Protective Ferments. (Serologische Untersuchungen mit Hilfe des Abderhaldenschen Dialysierverfahrens bei Gesunden und Kranken. E. Lampé.
150 Sources of Possible Error in Abderhalden's Serodiagnosis. (Ninhydrinreaktion.) H. Deetjen and E. Fränkel.
151 *Serodiagnosis of Pregnancy. L. Flatow.
152 *Abderhalden's Dialysis Procedure. H. Kämmerer, M. Clausz and K. Dieterich.
153 Paratyphoid Epidemic from Eel Meat. (Fischfleischvergiftung durch Bakterien der Paratyphus-Enteritisgruppe.) R. Müller.
154 Amebic Cystitis. W. Fischer.
155 *Dysentery Epidemic in Children. E. Keuper.
156 *Treatment of Dysentery. W. Lutsch.
157 Local Anesthesia for the Eye. (Ueber lokale Anästhesie in der Augenheilkunde mit Novokain-Kalium Sulfuricum.) H. Gebb.
158 Therapeutic Application of Electricity to Entire Limb; Bergonié's Method. A. Veith.
159 Technic for Diazo Reaction. Welwart.

147. **Colorimetric Determination of Uric Acid in Blood and Urine.**—The simple points necessary to bear in mind in examining blood and urine for uric acid are emphasized, especially with the iodic acid and phosphotungstic acid methods. The former is the simpler technic and is better for the urine but only for the blood when there is over 4 mg. of uric acid in 100 c.c. of blood, which is usually the case in gout. According to the research of the writers, normal blood contains from 1 to 3 mg. of uric acid, and the blood of beeves and swine has about the same proportion, but in gout the proportion ran up to 5 mg. in one case.

148. **Peptolytic Ferments in the Cells and Blood.**—Mandelbaum's experiments and research have demonstrated, he says, that the cells retain the peptolytic ferments with extreme tenacity and only when the cell dies suddenly does the ferment escape into the blood. He asserts therefore that the glycyl-tryptophan-splitting ferment is thus merely a death reaction.

149. **Specificity of the Protective Ferments.**—Lampé reports extensive research which corroborates the specific nature of the protective ferments in various affections of different organs. He expatiates on the importance of the information that can thus be derived in distinguishing between thyroid intoxication and hysteria or tuberculosis, or between epilepsy and hysteria, etc. Far and above all in practical importance, he adds, is the serodiagnosis thus rendered possible in malignant disease and pregnancy.

151-152. **Unreliability of Serodiagnosis of Pregnancy.**—Flatow says that the dialyzing shells are frequently imperfect and hence the results of the Abderhalden method are liable to be incorrect. In addition to this, he states that conclusions based on the unknown proportion of the specific substance which dialyzes through the membrane of the thimble is a very vague and unscientific method of performing the test. By coagulating out this substance it can be obtained in its entirety, not merely the fraction which dialyzes out. He has coagulated out the substance with acetic acid and potassium oxalate while Michaelis and Lagermarck used colloidal iron for the same purpose. The coagulum was then dissolved with sodium bicarbonate and then the ninhydrin test was applied. With the specific substance thus obtained in its entirety, he continues, the serum from men as well as from pregnant women gave a positive response to placenta tissue. The proteolytic ferments of normal blood serum digest placenta tissue irrespective of whether the serum comes from men or women, pregnant or non-pregnant.

Kämmerer and his coworkers are from the same clinic (Munich) and cite Fried, Oeller, Stephan, Plaut and others who are unable to accept the specific nature of the protective ferments. They give the particulars of their own latest series of applications of the test, which confirm anew, they assert, the unreliable nature of the findings. When contradictory results are obtained with the dialyzing technic the assumption that they are all due to defective technic cannot be accepted when the technic has been so thoroughly mastered as is the case at the Munich clinic. It is certainly remarkable, they say, that a procedure based on such a simple theoretical principle gives satisfactory results only in the hands of a certain few. (Compare Baeslack's article in The Journal, March 28, 1914, p. 1002.)

155. **Dysentery in Small Children.**—Keuper reports the discovery of Kruse's pseudodysentery bacillus in nearly every one of the twenty infants and small children in the epidemic described at Frankfurt a.M. The period of incubation seems to be about four or five days, and the children may have the bacilli in the stools occasionally for months after all symptoms have disappeared. Strict and prolonged isolation is thus necessary to prevent infection of others. The symptoms simulated those of ordinary follicular enteritis. Two of the children who had apparently recovered from the affection and whose stools were found sterile on two examinations were returned to the ward after their isolation, but their isolation had not been long enough and they proved a source of infection for the other children. There was recurrence in five cases. A change of food seemed beneficial; possibly it modified the medium for the bacilli. Various drugs were used but none displayed any marked or constant efficacy, including emetin.

156. **Salicylic Enemas in Dysentery.**—Lutsch writes from Africa to extol Eichhorst's method of treating dysentery by rectal enemas of a 2 per cent. solution of sodium salicylate. The dose for an adult is 13 gm. sodium salicylate in 650 gm. water. The prompt relief of pain and tenesmus is remarkable, and Lutsch says that he feels now that he has dysentery entirely under his control. He gives 0.3 gm. calomel or a trifle more and allows nothing but barley water the first day and later a little boiled milk. Six hours or more afterward he gives the salicylate injection and repeats it the second and fourth or third and fifth days. After he became convinced of the benefit from the salicylate injections he applied them also in ordinary diarrheas and catarrhal bowel affections and with striking success. The enema must be of body temperature and retained for half an hour. For a child a year old he uses only 90 gm. of the salicylate solution. Eichhorst recommended ice water for the vehicle and ice bags, but Lutsch has always found body temperature and application of heat far preferable to cold for diarrhea of any kind.

### Therapie der Gegenwart, Berlin

*March, LV, No. 3, pp. 97-44*

160 *Active Immunization Against Diphtheria. E. Schreiber.
161 *Treatment of Cystinuria. G. Klemperer and M. Jacoby.
162 *Radium Therapy of Cancer of Esophagus and Cardia. C. Lewin.
163 Cure of Rat Sarcomas with Autolysates. F. Blumenthal and C. Lewin.
164 *Prevention of Flat-Foot. (Zur Verhütung des Plattfusses in gewissen Berufen.) K. Gerson.

160. **Vaccination Against Diphtheria.**—Schreiber states that he has applied Behring's method of vaccination against diphtheria to more than 700 schoolchildren and Kissling to 300 children in the hospital. The intracutaneous seems the best route for the injection. The vaccine is a mixture of toxin and antitoxin, and thus it contains only traces of albumin so that there seems to be no danger of anaphylaxis from its use. No untoward by-effects were noted in any instance except a local reaction to the injection at times. Young children and babies give less of a reaction than older children and adults. The amount of antibodies produced in consequence of the injection seems to parallel the resisting powers and decline as the latter run out. Some respond to the vaccine with remarkable production of antibodies; in a few there seemed to be no response. Schreiber says that all the evidence to date sustains the assumption that a goodly production of antibodies protects against diphtheria infection. Persons who have much to do with diphtheria, physicians and nurses, gradually become insensibly immunized as their blood is found exceptionally rich in antibodies. As the antibodies develop only in response to actual diphtheric infection, the physicians and nurses must have acquired repeated mild infections to have developed antibodies to such an extent. The Behring system of two or three vaccinations aims to accomplish the same thing.

161. **Treatment of Cystinuria.**—Klemperer and Jacoby report the case of a woman of 27 who for years had suffered from paroxysmal pain in the kidneys. She had consulted numerous physicians and specialists on account of these kidney colics. After thorough examination, including the cystoscopic and roentgenoscopic, they had unanimously diagnosed the trouble as nervous pains until finally one discovered crystals in the sediment and recognized the shiny hexagonal flakes as cystin crystals. They dissolved readily in ammonia and could be precipitated out again by acetic acid. On a test diet it was found that the proportion of cystin in the urine became much reduced when the patient refrained from albumin in her food. The amount also dropped remarkably when she took an alkali. Not only the amount of sediment but the proportion of cystin present declined to traces and then to zero under the influence of from 6 to 10 gm. daily of sodium bicarbonate. This is the first time on record, Klemperer says, that by simply modifying the reaction, the intermediary metabolism has been

influenced at will. This experience shows that when the ordinary reaction of the blood does not permit the complete splitting of the cystin, this can be accomplished by merely rendering it a little more alkaline.

**162. Radium Therapy of Cancer of the Esophagus.**—Lewin summarizes twenty-five cases from his experience at Berlin and describes the technic which he has found most effectual. The results of the radium therapy with cancer here are far from the results achieved with uterine cancer, but still very great improvement was realized in a number of cases and one patient, a woman of 54, seems to have been actually cured by fifteen exposures from one to four hours long to 50, 80 or 100 milligrams of the radium in the course of four weeks. Roentgenograms before and after treatment showed finally the lumen of the esophagus of more normal width throughout; at first the cancer had encroached on it leaving less than a fifth permeable.

**164. Prevention of Flat-Foot.**—Gerson thinks that persons whose occupation compels them to stand much should take special pains to ward off flat-foot, and a simple and effectual means for this is to throw the weight of the foot more on the outer side of the foot. This relieves the tendons, ligaments and bones of the inner side so that they retain their shape and elasticity although the person may have to be on his feet all the time. This excessive use of the feet makes them perspire besides, and shoes or sandals should be worn which permit circulation of air. To keep the feet in slight supination he has an insole worn which is three quarters of a centimeter high on the inner side, from the toes to the heel, and it slopes gradually toward the outside, where it is only an eighth of a centimeter. This slope answers the purpose, sparing the complicated mechanism of the arch of the foot and throwing the weight on the stout outer edge. The insoles cause no annoyance, but he advises to wear them only while at work and take them off at other times. They have been found a great help by clerks, bakers, waiters, porters, women in laundries, and hospital and other nurses, in short, for all obliged to be much on their feet. An actual support for the arch does harm rather than good when the foot is normal. It is merely a question of preventing overstraining of the arch.

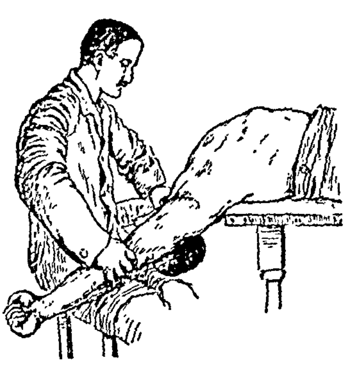
### Wiener klinische Wochenschrift, Vienna

*February 19, XXVII, No. 8, pp. 169-196*

165 *Congenital Asthenia in Children. (Das schwache Kind.) B. Sperk.
166 Frequency of Apical Tuberculosis in Children. E. Sluka.
167 *Technic for Artificial Respiration. (Neue Methode der künstlichen Atmung.) G. E. Weinländer.

**165. Congenital Asthenia in Children.**—Sperk always tests for the facialis phenomenon in examining a child, regarding it as a reliable sign of neurasthenia. Children who present it usually have other signs of congenital universal asthenia and the manifestations of this are often incorrectly interpreted by physicians. The pallor, weakness and scant appetite are ascribed to tuberculosis, stomach or heart disease, etc., when the trouble is in fact a general constitutional inferiority, both physical and psychic. The nervous threshold is abnormally low, and the functional weakness of the digestive system prevents proper nutrition. The internal secretions are involved also in the congenital asthenia, but its chief features are the asthenia, the low tonicity of the muscles, the false anemia, the low nervous threshold and abnormal readiness to fatigue, and the lack of or very slow response to therapeutic measures. The practical importance of recognizing this tendency lies in the necessity it imposes for general measures. It is useless to treat scoliosis in such a child until the general condition has been improved as a basis to work on. Orthopedists, Sperk remarks, are too apt to look at the spine alone and overlook the rest of the child. Pediatrists do not pay enough attention to developing deformity, he adds; probably because anatomy is studied on the cadaver instead of the living body. School life may affect children with this congenital asthenia as a constant psychic trauma, and the vacations are too short for them to recover from the effects of this. Such children should be guarded against overexertion. The proper application of massage, repose, relaxation, functional gymnastics, air and sunlight and a simple diet are all the means at our disposal, and success depends on utilizing them wisely.

**167. Simple Method of Artificial Respiration.**—Weinländer worked out this method of artificial respiration as a last resort in striving to save a child of 13 who had stopped breathing and lay in stupor from the effects of apoplexy after lumbar puncture to relieve uremia in acute nephritis. (The case was mentioned in these columns, January 17, p. 248, abstract 163.) Artificial respiration aroused the child and the intense cyanosis subsided, but every time the artificial respiration was suspended, the intense cyanosis returned and there was not a trace of spontaneous respiration, but the pulse rose to 110 under the artificial respiration and the child's normal color returned each time. By this means it proved possible to keep the child alive for almost seventeen hours as the artificial respiration was kept up until the heart gave out completely. The method of artificial respiration he worked out is readily seen from the illustration, which shows the extreme expansion of the chest, beyond anything attainable with any other technic, he says, while the chest spontaneously springs back by its own elasticity so that there is no need to compress the chest to promote expiration. Another advantage of the method is that the tongue falls forward out of the way and saliva and mucus drain down on the palate where they can be readily wiped out. The hyperemia of the brain may be a stimulant to the respiration center. No assistance is required, and the person applying the procedure does not become fatigued as his task is merely to grasp the arms and push them toward the external occipital protuberance, pushing downward and inward. This exerts extremely strong traction on the pectoral muscles which in turn drag on the ribs, lifting them up and thus inducing a powerful inspiration. After the arms have thus been pressed against the back of the head as it hangs over the edge of the table, the grasp of the arms is released and the arms swing of themselves down into the position shown in the illustration, at a right angle to the plane of the face and about half a yard from the median line. The muscles have to be entirely relaxed to do this, and consequently this technic is applicable only when the patient is unconscious.



Weinländer's method for artificial respiration.

### Zentralblatt für Chirurgie, Leipsic

*March 7, XLI, No. 10, pp. 417-464*

168 Prevention of Pain after Local Anesthesia. O. Klauber.
169 Traumatic Hernia. G. Schwalbach.
170 Exclusion of the Pylorus. (Zur Frage der Pylorusausschaltung.) E. Polya.

### Zentralblatt für Gynäkologie, Leipsic

*March 7, XXXVIII, No. 10, pp. 361-392*

171 *Extraperitoneal Cesarean Section; Indications and Technic. O. Küstner.

**171. Extraperitoneal Cesarean Section.**—Küstner has performed this operation on 103 women and all recovered after being safely delivered except two; one of whom died from the effect of the anesthetic and the other from tetanus; none from puerperal infection. The method is applied in all cases requiring artificial delivery by cesarean section, regardless of whether there is suspicion of infection or not. Fifty-three of the women were already infected or infection was regarded as highly probable, but only about thirty-three of the women had a febrile recovery. In these cases the membranes had ruptured from two to five days before the operation. Never in any instance was there a suspicion of inflammation of the peritoneum which had been pushed up out of the way before the uterus was opened, and never was there any sign of a tendency to meteorism. Since this technic has been introduced into the university maternity in his charge (Breslau), only one pubiotomy has been done and only a few supravaginal amputations on account of cancer, while no living child has had to be sacrificed.

He works through an incision 3 or 5 cm. to the left of the linea alba, and parallel to it, carrying the incision from the pelvis up but stopping considerably short of the umbilicus, cutting down to the fascia but working beyond this with blunt dissection, rubber-gloved fingers and pads, to refrain from injuring the peritoneum. Others make the incision in the flank or on the median line, but Küstner has been using this technic since 1908 and states that it renders the bladder more readily accessible while it permits the incision in the cervix more conveniently than through the other incisions. When the peritoneum is exposed the entire length of the incision, it is separated from the bladder by blunt dissection toward the median line and it is then worked up from the deeper regions until the uterus muscle is exposed bare of peritoneum. It is easy to mistake the bladder for the peritoneal fold and the peritoneum must be worked loose until the bare cervix lies unmistakably exposed. When this is once accomplished, it is a simple matter to push the bladder farther over toward the median line and the fold of the peritoneum upward without such extreme care as hitherto required.

As soon as enough of the cervix muscle is exposed to permit an adequate incision it is cut and the child's face is brought up into the opening. A subcutaneous injection of ergot is given before extracting the child, and then he waits. After a few good contractions of the uterus he applies the Credé if the placenta is not spontaneously expelled. The uterus is then sutured in two tiers and the abdominal wall, leaving a gauze wick in the lower corner in every case. As we never can tell beforehand whether the germs already in the cervix are virulent or not, it is safer to manage the case as if they were known to be highly virulent. None of the children died in consequence of the operation. It is always done with the bladder emptied after it has first been filled to locate it. This organ was injured in seven cases, but healed without disturbance in all; the injury occurred from mistaking the bladder for the vesico-uterine pouch. Küstner adds that this method of cesarean section is now applied without discrimination when there is reason to suppose that the child cannot be delivered by the natural route; the question is not raised as to whether the case is an infectious one or not.

### Gazzetta degli Ospedali e delle Cliniche, Milan

*XXXV, Nos. 25-29, pp. 257-312*

172 Stenosis of Uterine Cervix and Nervous Phenomena. (Sul trattamento della stenosi del collo uterino col metodo Pozzi e sui rapporti che intercedono fra le malattie utero-ovariche e le nevrosi.) R. Casali.
173 The Cerebrospinal Fluid in Tuberculous Meningitis. G. D. Lago.
174 Polymorphous Erythema. I. Civalleri.
175 Phosphocarnic Acid in Blood of Animals after Removal of Thyroid and Parathyroids. A. Nizzoli.

### Policlinico, Rome

*March 1, XXI, No. 9, pp. 297-332*

176 *Determination of Indican in the Urine. A. Rossi.

*March 8, No. 10, pp. 333-372*

177 *Anaphylaxis from Drugs. T. Silvestri.

176. **Test for Indican in the Urine.**—Rossi says that the greenish tint assumed by the urine when it is heated after having been treated with Obermeyer's reagent is a good index of the proportion of indican in it, even before the chloroform has been added. The addition of 2 c.c. of a 10 per cent. alcoholic solution of thymol to the chloroform hastens the response to the test, so that the whole is complete in a few seconds.

177. **Anaphylaxis from Drugs.**—Silvestri states that he has encountered a number of cases in which the disturbances after taking a certain drug can be explained only on the assumption of anaphylaxis. His list includes a case of threatening symptoms after taking atropin (woman of 30); after taking iodin, the idiosyncrasy in this case being inherited by the man's three children; after local contact with iodoform or phenol even in the minutest amounts; after pyramidon and after morphin or after both; after strychnin in one case, and after local application of mercury in one case. The symptoms merely indicate that the drug has acted like a poison in these persons; the peculiarity consists in the rapidity and intensity of the symptoms of poisoning, altogether out of proportion to the dose of the drug. He thinks that true anaphylaxis and an idiosyncrasy to a drug are of the same nature. In each the substance finds already present in the body some substance with which it unites to form a virulent and promptly acting toxin. Both should be warded off and treated on the same principles.

### Riforma Medica, Naples

*February 28, XXX, No. 9, pp. 225-252*

178 Radium Therapy. G. Rummo.
179 *Glycosuria of Renal Origin. (Contributo sperimentale sui significato delle glucosurie dette renali.) A. Ferrannini.
180 Hydroiodic Acid for Sterilization of the Skin. R. Lettieri.

179. **The So-Called Renal Glycosuria.**—Ferrannini has been studying the biologic mechanism of the disturbance in the kidney in this condition, especially from the influence of phlorizin. The glycosuria evidently is the result of qualitative abnormal conditions in the tubular epithelium but the general condition of the organism as a whole is a more potent factor than has hitherto been appreciated. Consequently too much credence must not be placed on the phlorizin test of kidney functioning alone.

### Tumori, Rome

*February, III, No. 4, pp. 441-568*

181 Antigens for Meiostagmin Test for Cancer. G. Izar, C. Patanè and G. di Quattro.
182 Tumor in Hypophysis Region. B. Lunghetti.
183 *Conception and Histogenesis of Endotheliomas. G. Bilancioni and L. T. Cipollone.

183. **Endothelioma.**—A number of colored plates accompany this report of research on the histogenesis of endothelioma as studied in fourteen cases. It closes with ten pages of alphabetically arranged titles of articles on endotheliomas.

### Brazil-Medico, Rio de Janeiro

*February, XXVIII, No. 7, pp. 61-70*

184 *Idiopathic Paroxysmal Hemoglobinuria. U. Paranhos.

184. **Paroxysmal Hemoglobinuria.**—Paranhos relates the case of a boy of 18 whose mother had died of eclampsia and whose one sister has liver disease. Beyond the ordinary children's diseases he had no pathologic past except for slight albuminuria for several years; no malaria. In 1903 he developed hemoglobinuria in consequence of a chilling and again up to six times during following winters. The phenomena observed confirm the assumption that this curious affection is the result of disturbances in the ductless glands, involving the spleen, liver and kidney. The urine during the attacks did not seem to contain blood-cells but merely dissolved hemoglobin; no signs of parasites were found at any time.

### Semana Medica, Buenos Aires

*January 29, XXI, No 5, pp. 241-296*

185 *Serodiagnosis of Pregnancy. (La suero-reaccion del embarazo Abderhalden.) J. A. Gabastou.
186 Physicians' Remuneration. (Honorarios medicos) P. B. Aquino.

*February 5, No. 6, pp. 297-356*

187 Influence of Atropin on Milk-Increasing Action of Hypophysis Extract. B. A. Houssay and C. Maag.
188 Prophylaxis of Industrial Diseases. (Reglamentaciones industriales.) J. M. Obarrio.
189 Demonstration of Identity of Two Finger Prints. H. Welsch and A. Lecha-Marzo.
190 Tuberculosis in Bolivia. N. M. Villazon.

*February 12, No. 7, pp. 357-412*

191 Vaccine Against Typhoid. (Nueva vacuna contra la fiebre tifoida.) S. Dessy, F. L. Grapiolo and V. Fossati.
192 Echinococcus Abdominal Disease. (Hidatidosis y bacilosis peritoneal.) A. Viton.
193 Work in Treatment of Mental Disease. F. Gorriti.
194 Artificial Creation of Tissues. (Notas de plasmogenia: Preparación de radiolarios; Calcita silicica preparada con silice coloidal a 40 por ciento.) A. L. Herrera.

185. **Serodiagnosis of Pregnancy.**—Gabastou applied Abderhalden's dialysis technic in 133 cases and obtained a positive response constantly in the 101 pregnant women, but the response was likewise positive in a few non-pregnant persons. He remarks resignedly that the technic was probably to blame in these cases and he urges zealous work to simplify the technic so that it will be less complicated and thus better adapted for general practice.

### St. Petersburger medizinische Zeitschrift

*February 14, XXXIX, No. 3, pp. 29-44*

195 *Tuberculous Lymph-Nodes in the Chest. (Endothorakale Drüsentuberkulose und Lymphozytose.) O. Moritz and P. Mende.

*February 28, No. 4, pp. 45-60*

196 Intravenous Injection of Phenol in Treatment of Tetanus. M. Joffe
197 Progress in Military Surgery. (Kriegschirurgie.) O. Holbeck.
198 Fatigue in Light of Research on Immunity. (Die Ermüdung im Lichte der Immunitätsforschung.) W. v. Holst.

195. **Lymphocytosis as Index of Tuberculous Thoracic Lymph-Nodes.**—Moritz confirms Schultz' statement that lymphocytosis seems to be a constant accompaniment of tuberculous processes in the lymph-nodes in the chest and hilus and that it can be increased by injection of a minute dose of tuberculin, but he does not regard this fact as pathognomonic. He has found that the lymphocyte count at different times during a single day may vary up and down to a total range of 12 per cent. even without injection of tuberculin. In his six cases of hilus tuberculosis there was a positive lymphocytosis only in three. He has also had healthy individuals under observation for periods up to ten years who presented more or less pronounced and constant lymphocytosis. Schulz' communication on the subject was summarized in THE JOURNAL, Nov. 25, 1911, lvii, p. 1806. In thirty-two cases of lymph-node or hilus tuberculosis the lymphocytosis increased by 6 up to 24 per cent. after a minute injection of tuberculin. There was only one negative response in the clinically certain cases, and the negative responses when the patients were reexamined several months later, testified to the importance of the lymphocytosis as a sign of an active process.

### Russky Vrach, St. Petersburg

*January 25, XIII, No. 4, pp. 109-144*

199 Modified Technic for Abderhalden's Serodiagnosis. B. Kabanoff.
200 The Influence of Animal Food on the Aorta and Internal Organs of Rabbits. V. K. Varischcheff.
201 Plague. A. D. Pavlovsky. Commenced in No. 2.
202 *Repeated Withdrawal of Small Amounts of Blood in Treatment of Grave Anemic States. A. K. Pedenko. Commenced in No. 3.
203 Etiology and Treatment of Keratoconus. I. I. Tamamsheff.

202. **Repeated Withdrawal of Small Amounts of Blood in Treatment of Grave Anemic States.**—Pedenko reports good results from treatment of pernicious anemia with repeated blood-letting. This method is recommended by him as the last resort, and must be considered together with the rest of the numerous methods as merely symptomatic treatment because the etiology of pernicious anemia is not known. The blood was taken from a vein at the elbow, 50 or 120 c.c.; in some cases the venesection was repeated six times at intervals of ten to seventeen days. He used this method on three patients with the idiopathic form of pernicious anemia; two were temporarily and one permanently improved. The beneficial action of the repeated blood-letting can be explained by its stimulating effect on the blood-making organs, especially the bone-marrow, which then produces an increased amount of blood elements. This opinion is borne out by the fact that in two of Pedenko's patients the spleen became enlarged after repeated blood-letting. The venesections may be of benefit also through removal of the toxins present in great quantities in the blood in pernicious anemia. Pedenko's patients showed marked toxemia, and even one blood-letting led to immediate improvement and subsidence of the manifestations of the toxemia.

### Hospitalstidende, Copenhagen

*March 4, LVII, No. 9, pp. 257-288*

204 Progressive Wasting Away of Fat Tissue. (Lipodystrofia progressiva.) V. Christiansen. Commenced in No. 8.

### Hygiea, Stockholm

*March, LXXVI, No. 4, pp. 193-255*

205 *Dependence of Dentition and Development of the Hair on the Glands with an Internal Secretion. (Dentition, hårutveckling och inre sekretion.) A. Josefson.

205. **Dentition and Growth of Hair under Control of Internal Secretions.**—Josefson presents evidence, clinical and roentgenoscopic, which reaffirms anew the correctness of Woods Hutchinson's recent paraphrase, "We are such stuff as ductless glands are made of, and our little life is rounded by a sheep." Josefson advocates systematic organ therapy during pregnancy in families which manifest a familial tendency to abnormal dentition and growth of hair. Tardy dentition should be regarded as a warning that the development of the body is not progressing as it should, and that the work of the glands with an internal secretion will have to be artificially supplemented to tide the patient along until normal conditions become installed. He does not attribute the trouble to any one gland but to some disturbance in the functional balance of the whole ductless-gland system. Dentition was hastened and regulated by thyroid treatment in a boy of 14 backward in intelligence and physical growth. Numerous anomalies and delayed development were found in the teeth of a woman of 27 with myxedema since puberty. Three children in one family have numerous anomalies in dentition and growth of hair and similar anomalies had been recorded in two preceding generations on the mother's side. Thyroid treatment of one of the children apparently had an important influence in stimulating and regulating the further growth of teeth, genitals and hair.

### Norsk Magazin for Lægevidenskaben, Christiania

*March, LXXV, No. 3, pp. 241-368*

206 Color of Hair and Eyes in Norway. (Øinenes og haarets farve i Norge.) A. Daae.
207 Surgery and Surgeons, Past and Present. P. Bull.
208 *The Blood Picture in the Scrofulous-Tuberculous. J. C. Trumpy.

208. **The Blood Picture in the Scrofulous-Tuberculous.**—Trumpy devotes twenty-five pages to tabulation of the details of the blood picture in 36 children examined from two to ten times; 23 were over 12, 30 over 8 and 32 over 5. He found as a rule that children who have recovered from a tuberculous affection have a morning leukocyte curve under 7,000 with relative lymphocytosis. In those with a recent but still closed tuberculous process with or without a fistula, but without fever, the leukocytes range from 7,000 to 10,000; if there is fever the eosinophils drop off. When there is a fistula accompanied by fever, there is pronounced leukocytosis while the number of eosinophils is very small or there may be none.

### Ugeskrift for Læger, Copenhagen

*February, 26, LXXVI, No. 9, pp. 377-404*

209 *Gonorrhea in the Female. (Gonorroiske Lidelser i de kvindelige Genitalia.) E. Pontoppidan.
210 Typhoid Epidemic Traced to Milk. L. Villadsen.

209. **Gonorrhea in the Female Genital Organs.**—Pontoppidan compares the length of treatment and the outcome in 303 cases of gonorrheal endometritis and fifty-five of mischief in tubes or ovaries. Salpingitis developed in 17.2 per cent. of 157 women with endometritis given intra-uterine treatment, and in 19.18 per cent. of 156 cases in which no local measures were applied to the uterus. The length of treatment was about the same in each group. The intra-uterine measures evidently were not instrumental in spreading the disease to the adnexa; blood-borne involvement seems the general rule. Considerably better results were obtained with hydrochloric acid than with any other local measures. He used a 0.5 per cent. solution of absolute hydrochloric alcohol (*½pCt. Saltsyreopløsning*) and found it simple and convenient of application so that it is now the main reliance in local treatment of gonorrhea in women, even applying it in the urethra also.

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# CONSTRICTIONS OF THE DUODENUM

## DUE TO ABNORMAL FOLDS OF THE ANTERIOR MESOGASTRIUM

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I desire to call attention to a condition which, so far as I have been able to learn, has hitherto been undescribed. The condition to which I refer is a constriction of the duodenum at the second portion giving rise to quite distinct, if not characteristic, symptoms, and due to the remains of a definite embryologic structure. Strictures of the duodenum due to cicatricial contraction, inflammatory adhesions, etc., of course, are well-recognized conditions, but the condition to which reference is here made is of an entirely different origin. In the first case of constriction of the duodenum of this kind which came under my observation, the condition was thought to be of inflammatory origin; but more careful study of subsequent cases has shown that the condition is due to the abnormal remains of a perfectly normal embryologic structure. I have operated in six of these cases now and their histories will be related briefly.

Case 1.—Miss N. C., aged 25, had diphtheria when 9 years old, but no other serious illness. For the past few years she had suffered from irregular and at first somewhat indefinite disturbances of the stomach. About two years before she came to me the appendix was removed under the impression that the trouble was due to a chronic appendicitis. No relief from the symptoms followed the operation. A short time thereafter she felt as if she had a small lump in the right side, just below the costal arch. She complained at times of shooting pains across the epigastric region into the right side. She had a sense of fulness of the stomach with some distress at variable intervals after eating, and occasionally a pain extending under the costal arch. Some of the attacks of pain were quite severe. The distress in the stomach after eating seemed to be quite constant, although it varied in degree; but the attacks of severe pain in the right side came on at irregular intervals. There was no history of jaundice and no vomiting during any of the attacks. A diagnosis of chronic cholecystitis was made, and as the patient's condition was interfering considerably with her work, an operation was advised.

At the operation the gall-bladder was found to be normal and free from gall-stones and adhesions. There were no evidences of present or past ulcers of the stomach or duodenum, but a distinct band of peritoneum was found, extending from the left border of the second portion of the duodenum across the duodenum on to the proximal end of the gall-bladder. The band produced a decided constriction of the duodenum at this point, and it was perfectly easy to see that any movement or distention of the duodenum would produce a drawing on the gall-bladder. While the band was not free, but was in the shape of a tense fold of peritoneum, it was thought at the time to be of inflammatory origin, and it was divided so that it could not constrict the bowel or draw on the gall-bladder. The patient made a good recovery and obtained permanent relief from her trouble.

Case 2.—Mrs. O. B., aged 32, married, had had measles, chicken-pox and whooping-cough, and was subject to frequent attacks of tonsillitis. Menstruation was always irregular, but never painful. The patient had never been pregnant. For the past ten years she has had distress after eating with bloating and belching, and was subject to severe headaches and so-called "bilious spells." About five years ago she says she passed about 5 feet of tapeworm, after which she felt better for a time but was not free from distress after eating. About two years ago she had a sudden attack of very severe pain in the right hypochondriac region, accompanied by vomiting and followed by jaundice. Since then her attacks of distress have been more frequent. She bloats and belches a great deal, and the upper abdomen becomes distended and sore. For the past month her distress has been almost constant. She thinks that she is usually slightly jaundiced, but says that the jaundice clears up temporarily after catharsis. The pain was thought not to be severe enough for the usual gall-stone attacks, and the real significance of the distress for so many years after eating was not properly appreciated; hence the diagnosis of chronic cholecystitis, probably with adhesions, was made. The bismuth meal and the Roentgen-ray unfortunately were not used in this case.

At the operation the gall-bladder was found to be normal and free from gall-stones. A distinct fold of peritoneum was found extending from the gall-bladder across the duodenum, where it became lost in the upper layer of the transverse mesocolon. This fold constricted the duodenum at the second portion. When the gases of the stomach were forced into the duodenum, the first portion would become greatly distended, showing very clearly the constricting effect of the band or fold. The fold was divided so as to free the duodenum from constriction. The appendix was examined and was found to be free from any evidences of disease. The patient made a good recovery and has remained well.

Case 3.—Mrs. L. R., aged 56, married, with five children, had scarlet fever at the age of 18. Ten years ago she had some operation on the uterus, probably trachelorrhaphy. For the past thirty years she has had stomach-trouble, consisting of a pain or a distress in the epigastric region after eating. The trouble has not been severe all the time, but she says that she has never been entirely free from some distress after eating, during all these years. During the past few years her trouble has increased and at times she has had attacks of quite severe pain in the right hypochondriac region, which has extended into the back, and at these times the upper abdomen has been quite tender and sore. She would have a feeling of nausea at times, but would not vomit. She has never been jaundiced. Her appetite is good but the bowels are constipated.

Examination shows a soft lax abdomen, with distinct tenderness in the region of the gall-bladder. A series of roentgenograms taken after the usual bismuth meal showed the stomach a little lower than normal in the upright position, but normal in size and outline. Peristaltic waves were normal and there was no evidence of obstruction at the pylorus. The stomach emptied itself within the normal time-limit. The caput, or bulb, however, was quite large in circumference and much elongated, and the right end of it seemed to be fixed or drawn upward and to the right, and the right end did not move with the left end and stomach on changing from the recumbent to the upright position (Figs. 1 and 2). A diagnosis of gall-stones was made, and on account of the long, large caput with the fixed right end, a constriction of the duodenum, probably from adhesions to the gall-bladder, was suggested.

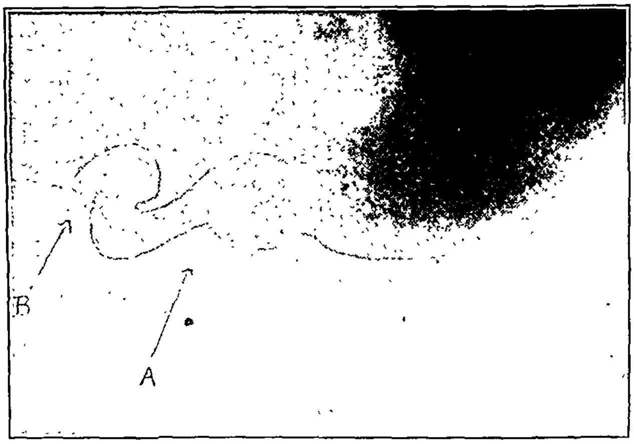

Fig. 1 (Case 1).—Patient recumbent; *A*, pylorus; *B*, fixed and constricted portion of duodenum. (In this and the following roentgenograms some of the outlines have been reenforced.)

Operation was performed Dec. 30, 1912. A median incision was made on account of the probable trouble with the duodenum. A well-defined fold or duplicature of the peritoneum was found extending from the junction of the gall-bladder with the cystic duct across the duodenum at its second portion, becoming lost in the upper layer of the transverse mesocolon. This fold was so short that it caused a well-marked constriction of the duodenum. The duodenum could be moved under the fold, showing that the fold was not really in the wall of the bowel or adherent to it. The first portion of the duodenum could be distended by pressing the gases of the stomach into it, and it was considerably enlarged. When the fold was divided, the constriction was immediately relieved. The gall-bladder was practically normal in appearance, and there were no pathologic adhesions present. There were a few gall-stones in the gall-bladder, so a small buttonhole was made through which the gall-bladder was drawn and emptied and drained, and the median incision closed. The recovery was uneventful and three months later the patient reported that she was free from all of her former pain.

Case 4.—Mr. C. E. A., aged 51, married, with good family history, had measles at 12 and a little later what he called "bilious fever." He smokes occasionally but does not drink. Several years ago he was kicked in the abdomen by a horse. This knocked the breath out of him temporarily, but did not lay him up. His present trouble, which he refers chiefly to his stomach, he has had for many years, but he thinks that it was made worse by the kick. His chief complaint is a dull pain or a distress in the upper part of the abdomen. The distress comes on after eating, not at once, but at irregular intervals. The distress is relieved by taking some light food into the stomach. During the past six months the distress has grown worse, and at times it has increased to actual pain. He has nausea but does not vomit. When he has the pain he is quite tender in the right epigastric region. His appetite is good and his bowels regular. He has not lost much weight, but does not feel so strong as he did.

Examination showed the general physical condition to be good. The blood showed 4,520,000 reds and 9,800 whites, 68 per cent of which were polymorphonuclears, 26 per cent. small mononuclears, 4 per cent. large mononuclears and 2 per cent. eosinophils. The urine showed nothing abnormal. Stomach analysis showed good motility. The contents, removed after the usual test-meal, showed digestion well advanced. Total acidity was 75, free hydrochloric acid 41, combined hydrochloric acid 34, no blood. Following the usual bismuth-meal several roentgenograms were made with the patient in the standing as well as in the recumbent position. These plates all showed the stomach rather low when filled and the patient standing. The peristaltic waves were regular and well-marked. No irregularities or filling defects were discoverable. The caput was irregular, longer than usual, and bulged below and to the right (Fig. 3). From the long duration of the symptoms malignancy was improbable, and the findings spoke against the stomach as the seat of the trouble.

A diagnosis of constriction of the duodenum was made, and the patient was operated on, April 13, 1913. A median incision was made under nerve-blocking with novocain. The stomach was found to be normal and there were no gall-stones in the gall-bladder. There were no evidences of past or present ulcers in the stomach or duodenum. A distinct fold of peritoneum was found extending from the under surface of the liver and about the gall-bladder across the second portion of the duodenum, constricting it considerably. In addition, the tip of the gall-bladder was found attached closely to the duodenum and drawn to the left. The peritoneal fold was divided, the gall-bladder freed from the duodenum and the raw surfaces covered with peritoneum. The patient made a good recovery and was relieved from his symptoms.

Case 5.—Mr. A. O. B., aged 43, married, manufacturer, had pleural pneumonia eleven years ago. With this exception he has enjoyed good health up to the beginning of his present trouble, which he dates back several years. During these several years he has had what he calls "indigestion"; his chief complaint has been of a dull ache or distressed feeling with a sensation of pressure in the epigastric and right hypochondriac region. The distress comes on two or three hours after eating, and it is usually relieved by eating. He has never had severe acute pain, nor does he vomit; but he is occasionally nauseated. He has sour eructations and is constantly troubled with a chronic pharyngitis. While he has remissions when he is not so bad, the general tendency has been for the condition to grow gradually worse. He is thin and spare, and under weight.

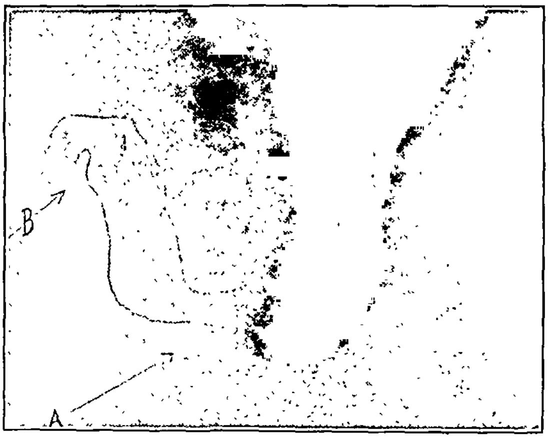

Fig. 2 (Case 1).—Same as Figure 1, with patient upright; *A*, pylorus; *B*, fixed and constricted portion of duodenum.

Examination shows the general physical condition good. Chest, extremities and nervous system are negative. There is tenderness in the epigastric region extending to the right. The stomach is not dilated, and the motility is good. Forty-five minutes after a test meal only a small amount of liquid could be recovered. Examination of the stomach contents showed a total acidity of 102, free hydrochloric acid 75, and no blood in the stomach contents. No occult blood was found in the stools. Several roentgenograms were made at different times after the usual bismuth meal. These showed a practically normal stomach with a large elongated caput, which seemed fixed at its right end (Fig. 4). A blood-count showed 4,520,000 reds, 7,200 whites, 68 per cent. polymorphonuclears, 26 per cent. small mononuclears and 6 per cent. large mononuclears. The urine was clear, amber and acid, and there were no albumin or sugar and only a trace of indican. Microscopic examination was negative. A diagnosis of constriction of the duodenum at the second portion with dilatation of the first portion was made.

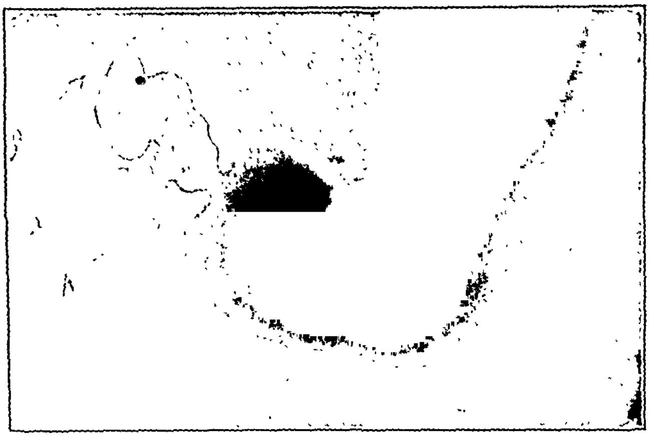

Fig. 3 (Case 4).—*A*, pylorus; *B*, constriction; *D*, peristaltic contraction of duodenum.

Operation was performed May 1, 1913, when the abdomen was opened the stomach was found to be normal. There were no signs of present or past ulcers, in either the stomach or the duodenum. The first portion of the duodenum was enlarged and could be easily ballooned up by pressing the gases of the stomach into it. A distinct, well-marked constriction of the second portion of the duodenum was found, due to a firm peritoneal band or fold, extending from below and to the left obliquely upward and to the right across the duodenum to the cystic duct, to the proximal portion of the gall-bladder and to the under surface of the liver (Fig. 5). The duodenum was so indented on the lower and left side that the opposed bulging surfaces had become adherent for from 2 to 3 cm. The duodenum was quite firmly fixed at this point, high up under the liver, and could not be drawn down. The constricting band was divided, and this freed the whole duodenum considerably. The adherent surfaces were separated and the denuded areas covered with peritoneum. The appendix was examined and found to be normal; hence it was not removed. The gall-bladder was normal and contained no gall-stones. As no other abnormal conditions were found, the abdomen was closed. The patient made a good recovery and was entirely relieved from his symptoms. By the end of two months he had gained 20 pounds in weight, and when last seen, eight months after the operation, he was perfectly well and had had no recurrence of his trouble.

In studying these cases we find not only a great similarity of symptoms, but also a similarity of findings at the operation. In all of them we find a disturbance of digestion, as evidenced by more or less distress in the epigastric region, coming on some time after eating, usually from two to three hours. The distress as a rule does not amount to a pain, although some of the patients did have at times attacks of quite sharp pain in the right epigastric or hypochondriac region. Sometimes the distress was described as a sensation of pressure in the stomach. The information was usually volunteered that the distress was relieved by the taking of food. Nausea was occasionally mentioned, but vomiting seldom occurred. Tenderness in the epigastric region was present in some degree in all of the cases. Chronicity was a distinct characteristic, the trouble often dating from early life. While the symptoms showed more or less defined intermissions during the early history, they became practically continuous after they were well established. Hyperchlorhydria was always present whenever examined for, and in Case 5 was of a very high degree. No occult blood was found in the stools.

The symptoms just described suggest very strongly duodenal ulcer, yet in none of the cases were any evidences found at the operation of present or past ulcers either in the stomach or in the duodenum. The sharp attacks of pain in the right hypochondriac region, with slight jaundice in two cases, suggested the possibility of gall-stones. Whether or not it will be possible to differentiate constrictions of the duodenum of this variety *from ulcers of the duodenum by the clinical history* alone remains for a wider experience to determine; but an analysis of these cases seems to show that there is an absence of the marked intermissions with bad relapses which are so common in ulcer cases. This might be expected from the permanency of the condition causing the trouble. The absence of occult blood in the stools would indicate this condition rather than ulcer.

The use of the Roentgen ray with the bismuth meal is a very valuable aid in the diagnosis. The long, large caput, showing a dilated first, and perhaps a part of the second portion of the duodenum, with a fixed point at the right of the constriction, in connection with the symptoms above mentioned, should lead one to at least strongly suspect the condition described. The difficulty in differentiating from gall-bladder trouble is shown by the symptoms which were present in two of the cases. When the constriction is well-established, the distinct continuity of the symptoms would be an important factor in the diagnosis.

In all of these cases the peritoneal fold, or duplicature, was well-marked and was undoubtedly the cause of the constriction. As the fold is certainly not of inflammatory origin, we must look to embryology for an explanation of its presence. At an early period of embryonic life, when the intestinal tract is little more than a straight tube, there is an anterior as well as a posterior mesentery; but whereas the posterior mesentery extends throughout the entire length of the intestinal canal, the anterior extends caudad only so far as the proximal third of the duodenum. In that portion of the anterior mesentery which is to lie cephalad of the diaphragm are developed the heart and some of the great

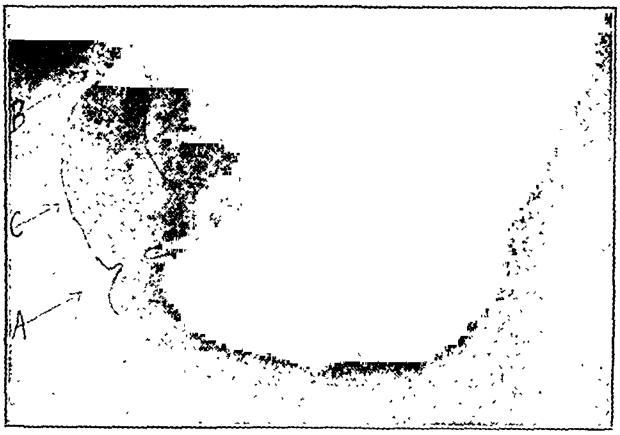

Fig. 4 (Case 5).—*A*, pylorus; *B*, point of constriction; *C*, dilated first portion of duodenum.

blood-vessels, and is therefore called the mesocardium. That portion of the anterior mesentery which is to lie caudad of the diaphragm is called the anterior gastroduodenal mesentery, or the ventral mesogastrium. In this mesogastrium the liver is developed as an outgrowth from the ventral wall of the duodenum, as shown diagramatically in Figure 6. The caudal edge of the ventral mesogastrium extends in an arch direction from the cephalic third of the duodenum to the umbilicus. As the liver develops, *it spreads out the two layers of the* mesogastrium, which eventually form the peritoneal covering of the liver, while the small remaining part which is attached to the ventral wall and to the diaphragm becomes the suspensory ligament of the liver. The umbilical vein passes from the umbilicus to the liver along the caudal edge of the ventral portion of the mesogastrium, and after fetal life these structures become the ligamentum teres.

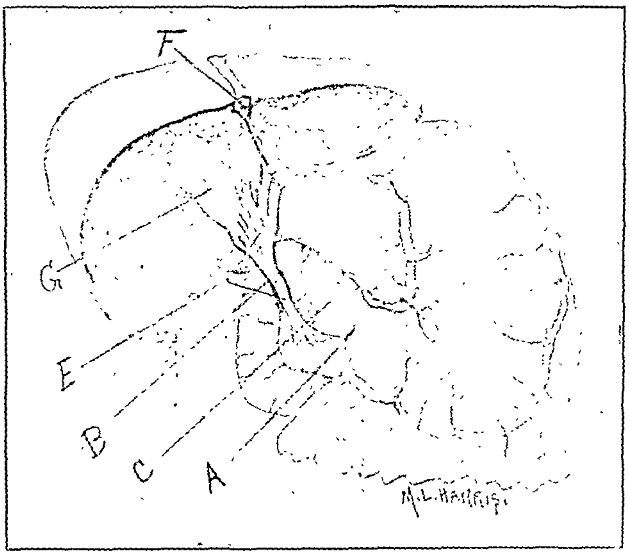

Fig. 5 (Case 5).—*A*, pylorus; *B*, point of constriction; *C*, dilated first portion of duodenum; *E*, constricting band or fold; *F*, round ligament; *G*, gall-bladder.

We are interested more particularly in that portion of the mesogastrium which extends from the duodenum to the liver after this organ has become developed, and now is given the name of the hepatoduodenal ligament (Fig. 7). In this so-called ligament, which really consists of little else than the two layers of peritoneum forming the mesogastrium, there necessarily pass the hepatic, cystic and common gall-ducts, the portal vein and the hepatic artery. As the stomach rotates to the left and the liver becomes crowded to the right, the hepatoduodenal ligament draws the duodenum upward and to the right, forming the hepatic flexure, and the turning of the duodenum to the right brings the right layer of the dorsal mesentery of the duodenum in contact with the posterior parietal peritoneum. Agglutination takes place with eventual disappearance of the two layers of peritoneum in contact, and this process begins at the duodenojejunal junction and extends cephalad as far as the hepatic flexure of the duodenum or the caudal edge of the anterior mesogastrium, where the process ceases. The result of this is that that portion of the duodenum which lies caudad of the hepatoduodenal ligament is practically retroperitoneal, while the portion which corresponds to the anterior mesogastrium remains surrounded by peritoneum.

Normally, after fetal life the caudal edge of the anterior mesogastrium at its junction with the duodenum fades out and becomes imperceptibly lost in the peritoneum covering this portion of the bowel. Occasionally the transverse colon, as it crosses the duodenum in its evolution, becomes attached to the caudal edge of the mesocolon and draws it out in a fold more or less distinct, which persists and forms what is called the hepatocolic ligament. This consists of a peritoneal fold containing at times a small amount of fat between its layers, and extends, when present, usually from the gall-bladder or the cystic duct across to the transverse colon or the transverse mesocolon. Occasionally we find what was originally the left layer, but what now becomes the ventral layer of the caudal edge of the anterior mesogastrium persisting or existing as a distinct fold, extending across the ventral surface of the duodenum at the hepatic flexure and becoming lost in the peritoneum over the pancreas or in the cephalic layer of the transverse mesocolon. It was the presence of such an abnormal fold of the left (ventral) layer of the caudal edge of the anterior mesogastrium that caused the constriction of the duodenum in the cases here described.

Some of these peritoneal folds have been recognized and described, particularly by Ancel and Sencert,[1] who describe them under the name of accessory ligaments of the liver. Of these accessory ligaments, they say:

> The most important are a ligamentum cysticoduodeno-epiploicum and an anterior and posterior hepatorenale. The first represents an extension to the right of the omentum minus and passes from the under surface of the gall-bladder in two layers, the anterior etxending to the omentum majus, while the posterior extends over the posterior surface of the duodenum on to the abdominal wall.

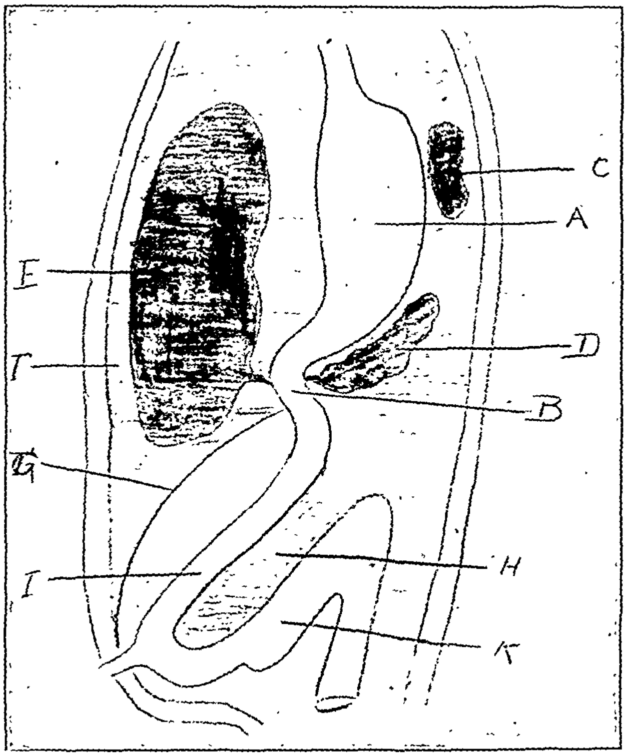

Fig. 6.—Diagrammatic representation of the development of the liver in the embryo; *A*, stomach; *B*, duodenum; *C*, spleen; *D*, pancreas; *E*, liver; *F*, anterior mesogastrium; *G*, caudal edge of anterior mesogastrium; *H*, mesentery; *I*, ilium; *K*, colon.

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[1] Ancel and Sencert: Neue deutsch. Chir., viii, 9.

It is evident that this is the same fold which has been described by others as the ligamentum hepatocolicum. That this ligament or fold, when present, may occasionally give rise to symptoms has been recognized by Konjetzny,[2] who says:

> The practical importance and clinical significance of the ligamentum hepatocolicum lies in the fact that under certain conditions it may give rise to severe annoyance, simulating closely chronic cholecystitis, which may occasion operative interference. I have seen such cases. One was astonished at the operation to find in place of the expected inflamed gall-bladder containing stones, a perfectly normal bladder containing clear bacteria-free bile. The only abnormal condition present was a broad peritoneal duplicature extending from the transverse colon to the gall-bladder, which, however, did not show a trace of inflammatory changes. Division of this fold brought relief from the suffering. Naturally this ligament, as a result of pure mechanical influences (pulling and tension through the drawing effect of the transverse colon) can become secondarily indurated, as is occasionally found elsewhere in the peritoneum or mesentery without a real bacterial infection being assumed. The clinical symptoms caused by this fold are without doubt to be ascribed to the drawing effect of the transverse colon, which is specially marked when it is filled. In that manner the drawing on the gall-bladder is produced, and under certain conditions from time to time a kinking of the neck of the gall-bladder or of the cystic duct, with the damming up of the contents of the bladder. Under such conditions a thickening of the wall of the gall-bladder, without inflammatory changes and the formation of pure cholesterin stones, may occur.

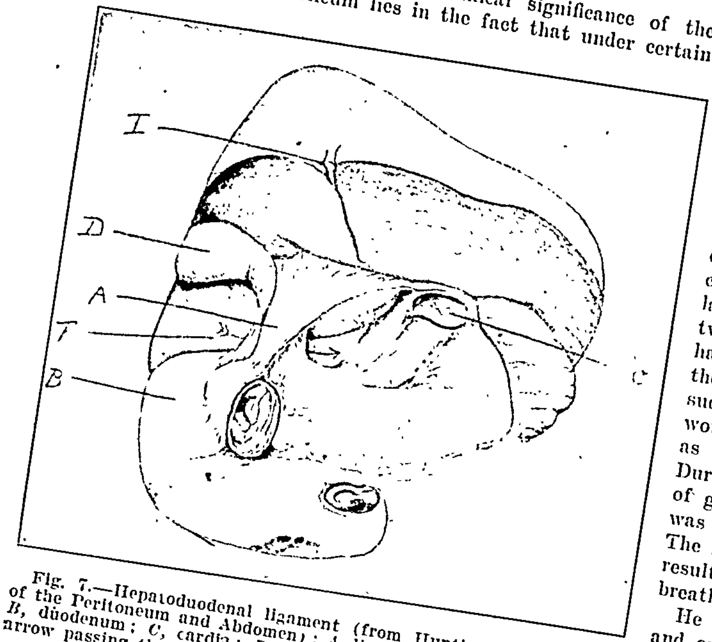

Fig. 7.—Hepatoduodenal ligament (from Huntington's Anatomy of the Peritoneum and Abdomen): *A*, ligamentum hepatoduodenale; *B*, duodenum; *C*, cardia; *D*, gall-bladder; *I*, round ligament; *F*, arrow passing through the foramen of Winslow.

It will be remembered that in two of my cases, symptoms referable to the gall-bladder were present, but at the operation the gall-bladder was found to be normal and free from gall-stones. I have not found described in the literature cases of constriction of the duodenum due to abnormal remains of the caudal edge of the ventral mesogastrium, but since recognizing the condition in these five cases, I am convinced that they are not so rare, and now that they are known a more careful examination of patients suffering from chronic distress in the upper abdomen with hyperchlorhydria, etc., will lead to their recognition and proper treatment. Division of the folds, thus relieving the constriction of the duodenum, brought complete relief in all of my cases after many years of suffering.

Since the foregoing was written, operation has been performed in a sixth case showing a remarkable constriction of the duodenum.

CASE 6.—P. G., aged 55, at 20 years of age had what the doctors called chronic diarrhea, which is said to have developed into chills and fever. The condition lasted for a year. When about 26 years old he began to have trouble with his stomach. He would have eructations of gas, often foul-smelling, with tympanites and constipation, but no nausea or vomiting. For twenty years he had a variable amount of stomach trouble of this character, when in 1908 he had the first severe attack characterized by pain in the epigastric region. The attack laid him up for five days and he was unable to work for two weeks. The condition was diagnosed acute gastritis. He had a similar severe attack in 1912 and two in 1913. All of the attacks were similar in character. The pain, which was of sudden onset, was located in the right epigastric region and would last two or three days. It was frequently so severe as to require morphin for relief. There was no vomiting. During this time he consulted several doctors and a diagnosis of gall-stones was made by all of them. A roentgenogram was taken which is said not to have shown any gall-stones. The blood, urine and stools had been examined, with negative results. He is said to have had a coated tongue and a foul breath at all times.

He was seen by me in consultation with Dr. George J. Aste, and operated on Jan. 7, 1914. It is to be regretted that we were unable to obtain roentgenograms after the bismuth meal in this case; but a duodenal constriction was suspected and a median incision was made in the epigastric region. A very well-defined, broad peritoneal fold was found, extending from the proximal end of the gall-bladder and the under-surface of the liver across the cystic duct and the duodenum, becoming lost in the root of the cephalic layer of the transverse mesocolon. The fold was adherent to the duodenum, and beneath the broad fold the duodenum showed two distinct kinks, as shown in Figure 8. The opposed surfaces of the duodenum at the kinks were adherent. The fold was divided and the duodenum freed. In freeing the duodenum an area of denuded surface remained. This denuded area was covered by a detached peritoneal graft taken from the omentum. The graft was stitched in place with fine catgut sutures. The patient recovered from the operation, but of course it is too early to say anything about the end-result.

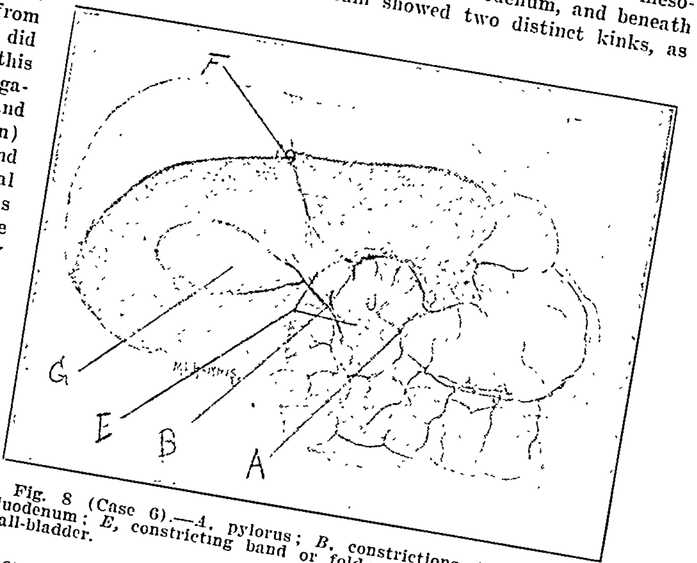

Fig. 8 (Case 6).—*A*, pylorus; *B*, constrictions (two) of the duodenum; *E*, constricting band or fold; *F*, round ligament; *G*, gall-bladder.

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[2] Konjetzny: Neue deutsch. Chir., viii, 8.

# THE TREATMENT OF ACUTE OSTEOMYELITIS OF THE LONG BONES BY MEANS OF THE DENTAL ENGINE AND A LARGE BURR

## PRELIMINARY REPORT

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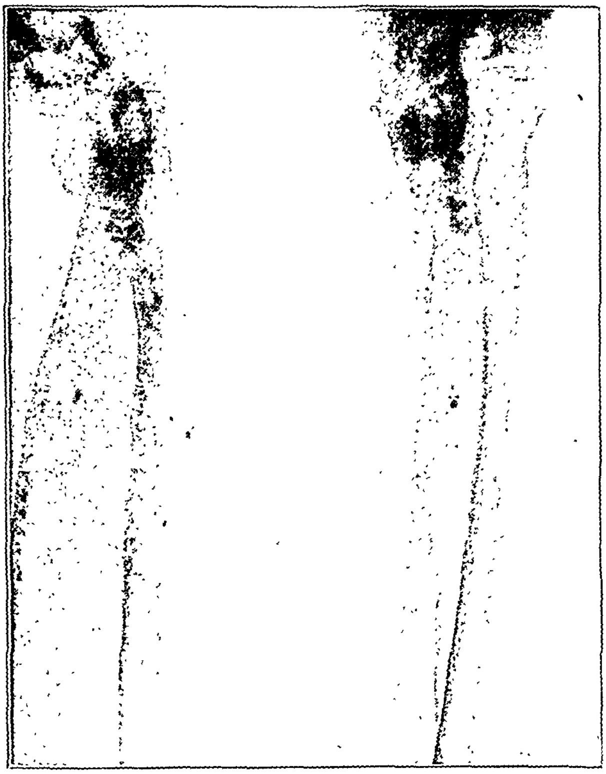
The management of acute and chronic osteomyelitis of the long bones is anything but a source of pride to the science of surgery. The crude weapons of attack in the shape of the mallet and chisel really belong to the stone age of surgery. In the hands of the most expert they cause excessive trauma, frequently damage important structures and rarely eradicate all the diseased tissue. The highly specialized structures of bone, namely, the haversian systems, compact and cancellous tissue and the peculiar arrangement of the blood-supply of the long bones, as demonstrated by Lexer, make the attainment of sterilization in an old infected bone cavity so hopeless a task that it is frequently surrendered as futile.



Regeneration of bone in a case of acute osteomyelitis treated by means of the dental engine and a large burr.

The advancement in the treatment of chronic infections in other tissues caused by the so-called pus-producing micro-organisms, by both local and systemic methods, should make us feel that sterilization of an osseous cavity is as much a possibility for the surgeon as is the attainment of asepsis in a carious tooth for the dentist. It must be acknowledged by all who have had experience in the treatment of fractures of the jaw that the exact methods and beautiful technic employed by the average dentist in the treatment of this condition frequently make the efforts of an otherwise skilful surgeon appear crude and bungling. The attainment of absolute asepsis in badly decayed and infected teeth is a matter of every-day occurrence to the dentist. Ought not then the sterilization of the medullary cavities of the long bones to be within the range of possibility, if the right technic were used?

With this idea in mind, I have treated a series of cases of chronic osteomyelitis of the long bones at Cook County Hospital by the following method: Preparation of skin by shaving and painting with a solution composed of glycerin, one part, iodin, two parts; long skin incision over shaft of bone; separation of soft tissues and periosteum overlying infected cavity; opening medulla by trephine, drill or chisel; enlargement of cavity. This may be done, either by chisel and mallet, or by the large burr attached to a dental engine driven by the regular electric current. With a large burr a considerable portion of the shaft of a long bone can be removed in a very short time. A stream of hot antiseptic solution should be played on the burr continuously, while it is in use, to clear the field of débris and to facilitate the action of the burr. The rapidly revolving burr is applied to the medullary surface of the bone and pressure made from within outward precisely as the dentist does in drilling out a tooth. This procedure should be continued until every portion of suspicious bone has been removed and the remaining surface is smooth and even, without any projecting spicules or ragged edges, such as usually remain after the use of the chisel.

The operator readily acquires the ability to decide when the burr is drilling out diseased or normal bone, because of the greater resistance offered by the healthy osseous tissue. Because of the ease with which the burr is manipulated, the operator may safely venture into areas which would be very dangerous if the chisel and mallet were used. The risk of fracturing the long bones is reduced to a minimum because the element of violent trauma has been removed. Thus, by the use of the burr, a hazardous, violent and crude procedure is transformed into a comparatively safe operation with a definite and precise technic.

Experimental work must determine what changes are produced on the drilled surface of the bone different from those produced by the chisel. Do the heat and friction generated by the rapidly revolving burr kill the pus-producing micro-organisms? It has been shown by cultures made from the inner surface of machinery belting that mechanical influence may produce an effective bactericidal action, as the cultures made from the belting of machinery in constant use were sterile.

The following case illustrates the results obtainable by the cleaning out of the medullary cavity of infected bone with the large burr.

*Patient.*—J. M., aged 42, machinist, in February, 1913, complained of an ache in right forearm extending from elbow to wrist. Patient consulted physician, who treated him for chronic rheumatism. The forearm began to swell and the patient was referred to a surgeon, who made an incision over the ulna for about three-fourths of its length. Nothing was done to the bone. The swelling was enormous and the pain intense. The patient was told that nothing more could be done for him, and he applied for admission at Cook County Hospital. His temperature was 101°, pulse 120, leukocyte count 20,000. Roentgen ray showed entire destruction of the upper end of bone, including the olecranon process, together with involvement of the entire shaft of the bone. Quantities of thick, yellow pus were discharged from three sinuses leading down to the bone. Amputation seemed inevitable. As it was the patient's right arm. However, an attempt was made to remove the necrotic and diseased tissue. With ether anesthesia the ulna was exposed throughout its whole extent. The soft tissues were retracted and the olecranon process and upper end of bone entirely removed subperiosteally. The remainder of the shaft was drilled out with a small dental burr, the larger ones not having been made at that time. All necrotic tissue was removed and a smooth, clean, hard bed of bone remained. This was filled with bone wax and the soft tissues sutured without drain.

The man now has good extension of his forearm, in spite of absence of the olecranon process, and a strong grip in his hand and is able to work.

32 North State Street.

# THREE CASES OF WIRING WITH ELECTROLYSIS FOR AORTIC ANEURYSM

## ONE HERETOFORE IN PART REPORTED *

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I wish to report three additional cases of wiring with electrolysis for aneurysm of the thoracic aorta, in one of which (Case 2) the patient illustrates the beneficial effects of this procedure more than four years after the first operation and more than two years after the second wiring, which was resorted to because he had a return of very severe pain and a marked bulging near the site of the original sac.

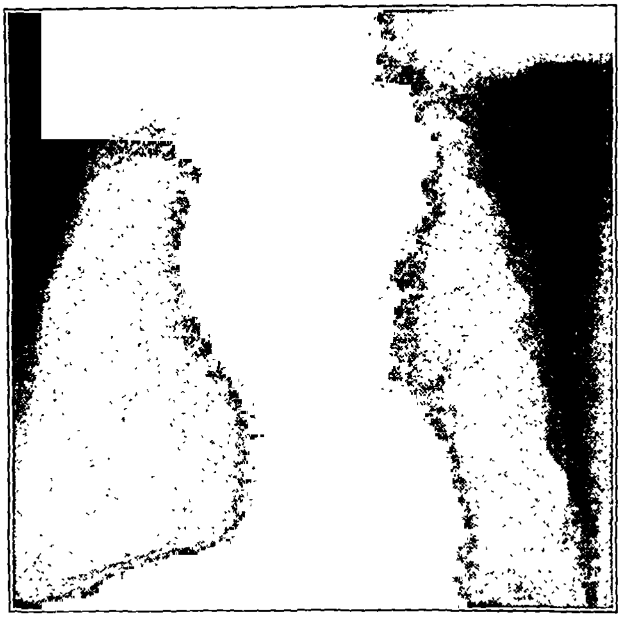

Fig. 1.—Enormous aneurysm of ascending arch (Case 1) before wiring.

Case 1.—A man, aged 55, had a large pulsating growth in the upper zone of the right chest, anteriorly, which extended from the second rib in the midclavicular line to the fifth rib (Figs. 1 and 2). The growth did not point, in the sense that it presented a spot which was elevated above the rest of the swelling, but in the center there was a spot where expansile pulsation was marked and the tissues very soft and tender on palpation. The chief symptoms consisted in severe pain and dyspnea.

The record of the operation is as follows:
1:15 p. m., Feb. 22, 1912: 5 milliamperes.
1:19: 10 milliamperes.
1:23: 15 milliamperes.
1:27: 20 milliamperes.
1:28: Wire broke close to needle.
1:29: 5 milliamperes.
1:32: 10 milliamperes.
1:33: 15 milliamperes.
1:34: 20 milliamperes.
1:35: 25 milliamperes.

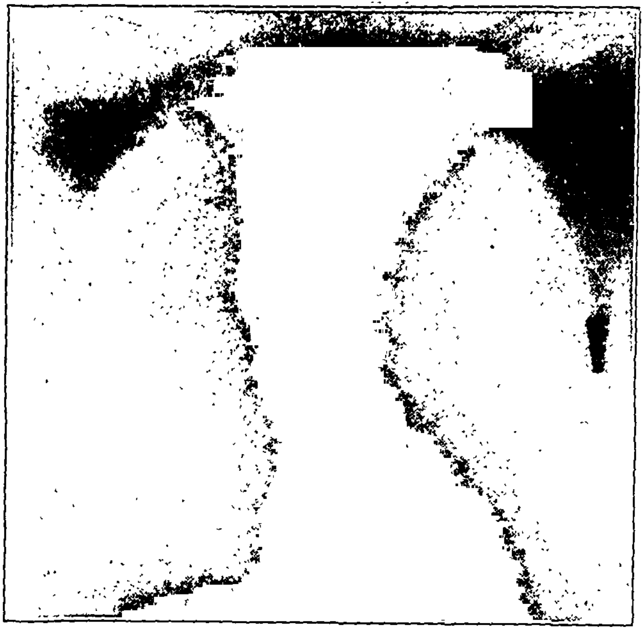

Fig. 2.—Same case of large aneurysm as that shown in Figure 1, wired Feb. 22, 1912; wire coiled in aneurysm, which is lessened in size one week after operation; the patient returned to work and was killed ten months later while walking on the railroad.

1:36: 30 milliamperes.
1:37: 35 milliamperes.
1:41: 40 milliamperes.
1:44: 45 milliamperes.
1:49: 50 milliamperes; maximum amperage, maintained for one minute.
2:00: 45 milliamperes.
2:00:30: 40 milliamperes.
2:01: 35 milliamperes.
2:01:30: 30 milliamperes.
2:02: 25 milliamperes.
2:02:30: 20 milliamperes.
2:03: 15 milliamperes.
2:03:30: 10 milliamperes.
2:04: 5 milliamperes.
2:05: Discontinued.
Insertion of needle at 1:01 p. m.
Insertion of wire begun at 1:03 p. m.
Current started at 1:15 p. m. and discontinued at 2:05 p. m.
Length of operation, one hour and four minutes.

The patient, notwithstanding the fact that his circulatory state was somewhat excited by the performance and interruption of the operation, whereby the pressure in the sac was increased, stated when the current had passed for twenty minutes that his chest felt more comfortable and that he had less pain. Twenty-four hours later he had great hoarseness so that he could speak only in a whisper and he developed signs of pulmonary congestion at the base of the right lung, which cleared up in forty-eight hours under the use of full doses of atropin. The hoarseness gradually decreased, and when he returned home four weeks later had almost disappeared. More than three months later the patient wrote that he was "getting along very well" and "feeling pretty well."

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* Read before the College of Physicians of Philadelphia, March 3, 1914.

Again, July 10, 1912, he wrote: "I am able to talk pretty well, but get husky when doing very much talking."

In October, 1912, eight months after wiring, this patient came from his home in Johnstown to Altoona, hearing that I would be in the latter town, and stated, after walking about a mile up a steep grade from the station, that he had come to show how well he was. He then walked back to the station without distress. Eleven months after the operation, while walking along the railroad track, he was struck and killed by a train backing down on him.

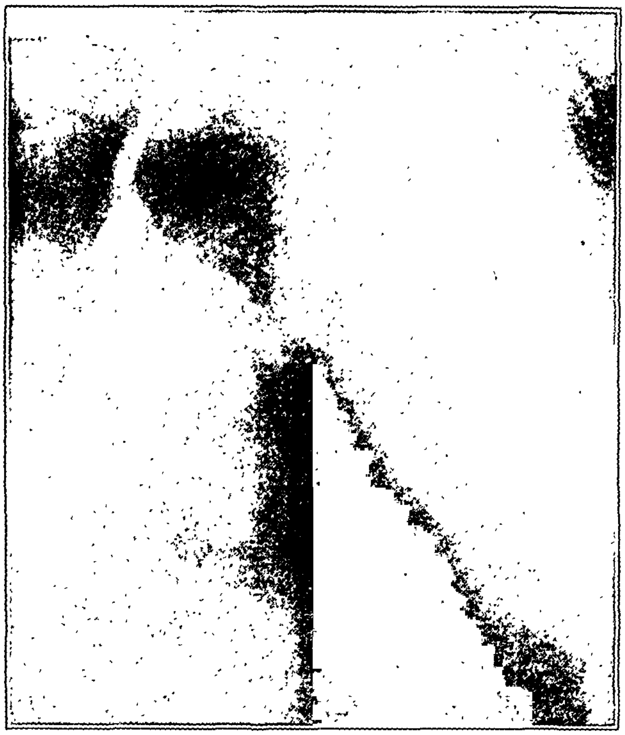

Fig. 3.—Upper wire put in by Dr. Beardsley in November, 1909, and lower wire introduced by the author in February, 1912, extending down the aorta because it did not coil as gold wire does; patient (Case 2) alive and well.

It will be seen that thirteen minutes after the current was turned on there is a note that the wire broke off. On examining the end of the hollow needle I found that there was a green fluid like verdigris. Fortunately, I was able to push the end of the wire, past that already in the needle, into the sac and continue the procedure, starting the current again at 5 milliamperes.

As this was the second operation in which this untoward accident occurred, I investigated the matter and found that the alloy mixed with the gold was copper and that the copper had been eaten out by the current, proving that a wire made with gold and copper is an unsafe wire because it might be impossible or inadvisable to get more wire in and, if the break occurred after the clot formed in the needle, the further use of electricity would be impossible, although it is absolutely essential to success. At my request, one of the experts of the Philadelphia Electric Company was kind enough to undertake a series of experiments to determine the changes in different kinds of gold wire and silver wire produced by electrolysis, using the same strength of current that I employed clinically, and employing normal salt solution to represent the tonicity of the blood. His results were as follows:

*Electrolyte.*—This consisted of saline solution having 1 teaspoonful of salt to 1 pint of water.

*Electrodes.*—The positive electrode was the sample wire to be tested. The negative consisted of copper wire.

*Current Used.*—A current of 50 milliamperes was allowed to pass for one hour.

RESULTS OF TEST

| Sample | Weight Before mg. | Weight After mg. | Change in Weight |
|---|---|---|---|
| Yellow gold | 100 | 97 | 3 per cent. decrease |
| Red gold | 259.1 | 160 | 38 per cent. decrease |
| Silver | 283 | 298.1 | 5 per cent. decrease |

The yellow gold wire was practically the same after the test as before, its physical appearance being the same.

The red gold wire became very brittle after the test and changed to a blackish color.

The silver wire took a grayish-blue deposit, and was as flexible as it was before the test.

The saline solution in each case became somewhat of a greenish color.

Chemical analysis of the solution and of the deposits on the wire was not made.

The fact that copper was used for the negative electrode may be partly the cause for the greenish color of the solution. It was unfortunate that platinum wire was not used for the negative electrode. Although this test was rough and approximate, the results give very interesting information as to the kind of wire to be used.

Case 2.—The patient is an intelligent colored man, aged 61, who appears hale and hearty. He was first wired when in the service of Dr. Rhoads by my chief of clinic, Dr. Beardsley, Nov. 1, 1909, four years and four months ago, for a large growth of the descending arch, pointing anteriorly, and wired a second time by me Feb. 23, 1912, more than two years ago, since which time he has been to his home in New York State near Albany. After his first operation he worked hard and on one occasion visited friends by walking 60 miles. A report of this case, after the first operation, was published by Dr. Beardsley.[1] Aside from the patient's being practically well so far as pain and dyspnea are concerned, the case is interesting in that it is the only one in which I have employed silver wire, using silver wire because I had used all the gold wire I could obtain on the previous day in the case just

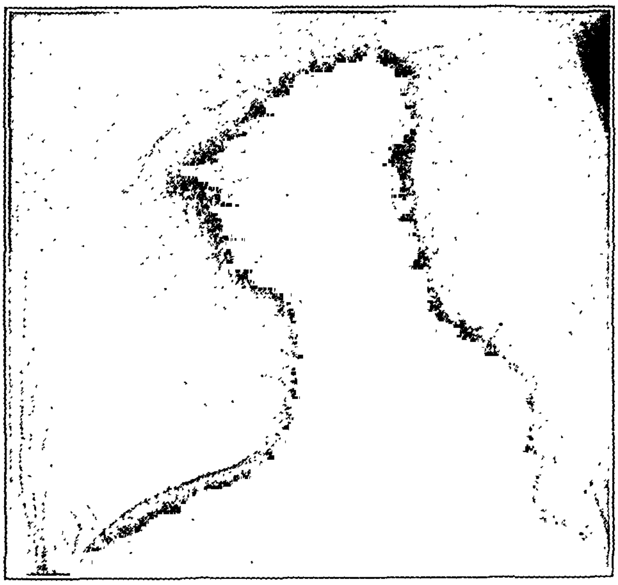

Fig. 4.—Large aneurysm of ascending arch (Case 3) wired July 13, 1912; wire coiled in sac and extending all the way from right to left; roentgenogram taken one week later.

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[1] Beardsley, E. J. G.: Symptomatic Relief in Aortic Aneurysm by Wiring and Galvanism (Moore-Conradi Method), Therap. Gaz., March 15, 1911, p. 156.

reported. This man's symptoms were so urgent as to pain, dyspnea and the appearance of the aneurysm, which looked as if it was about to burst, that I felt justified in using silver wire, but I never shall do so again because his survival is most remarkable. The silver wire, having no spring, did not coil, and therefore extended itself far beyond the sac, and the roentgenogram (Fig. 3) shows that it not only entered the aneurysm, but passed not once but several times up and down the aorta as low as the diaphragm. The plate shows this better than the photograph. Why the process of coagulation which closed the sac did not also close the aorta I do not know, but some of the wire certainly went far afield from where I intended it to go. Figure 3 shows the wire placed in the sac in 1909 by Dr. Beardsley above the silver wire which I introduced Feb. 23, 1912. Since that time the patient has been up and about and in excellent condition, with little or no pain except on active exercise.

CASE 3.—This patient presented a large aneurysm of the ascending arch as shown in Figure 4. The roentgenoscopic report made by Dr. Manges was as follows:

"Mr. ——— has a large sacculated aneurysm involving all of the transverse arch and the latter part of the ascending arch. The apex of the sac lies in close relation with the anterior chest wall on a level with the second interspace and about the midclavicular line. There is a considerable space between the posterior surface of the sac and the posterior chest wall, on the right side. On the left side, however, the sac approaches more nearly the posterior wall than the anterior, although it is not in close relation with either. There is no evidence of erosion of the ribs as far as I am able to determine, but the aneurysmal sac completely obscures a portion of the chest wall."

The patient suffered from agonizing pain and urgent dyspnea with incessant cough, and could lie without strangling only on the left side. The record of the operation is as follows:

12:51 p. m., July 13, 1912: Needle inserted.
1:07: Current turned on.
1:07-1:12: 8 milliamperes.
1:12:1:17: 20 milliamperes.
1:17:1:22: 30 milliamperes.
1:22:1:37: 40 milliamperes.
1:27:1:32: 50 milliamperes.
1:32:1:47: 60 milliamperes.
1:47:1:48: 50 milliamperes.
1:48:1:49: 40 milliamperes.
1:49:1:50: 30 milliamperes.
1:50:1:51: 20 milliamperes.
1:51:1:52: 10 milliamperes.
Current turned off at 1:52 p. m.

The patient was in a desperate state, but within two days after operation he could lie on his back and right side with comfort. He had been unable to lie on the right side without great dyspnea and cyanosis for weeks. Cough had been most excessive.

Two months after operation he wrote from his home in Pittsburgh, Pa., that he had been out of the house only once and often had great pain in his heart and chest and all over the body and limbs. Ten months after the operation he wrote as follows:

"I am not getting very strong since the operation and have been able to do but very little work; don't seem to get any strength in my limbs; can lie in only one position and that is on my left side. Neither can I recline in a chair, as the pressure on my back starts me to coughing. It also hurts to raise my right arm and makes me cough when I attempt it. My muscles or nerves all over my body seem to be sore. The pains in my aneurysm have not occurred very frequently, but I have had several severe pains around my heart. My appetite is very good and I am almost back to my normal weight. I get very short of breath from the least little exertion or from talking; do not rest very well at nights and do a great deal of coughing in the mornings."

This patient died Dec. 24, 1913, seventeen months after the operation.

In an article previously published by me,[2] in which I reported a number of cases of this character, I reached the following conclusions:

1. The fact that no accident has occurred in any of the twenty-two (now twenty-five) operations I have performed leads me to believe that this seemingly radical operation is not a dangerous one, the more so as I have no knowledge of any accident having taken place when the operation was *properly* performed by others. In one reported case an attempt to wire a fusion aneurysm of the carotid artery resulted almost immediately in hemiplegia, and in another unreported case the mistake of using the negative pole in the growth loosened the clot already present and caused multiple emboli.

2. The operation is the only one that offers material hope of prolonging life, this having been prolonged in one case at least five years.

3. It is justified by the prompt relief of pain which nearly always ensues and lasts, unless the growth, extending in another direction, creates a new source of pain.

4. The diagnosis of saccular aneurysm should always be confirmed by Roentgen-ray examination, as this operation is contra-indicated in fusiform aneurysm for obvious reasons.

5. Great care is absolutely necessary that properly prepared wire be employed.

To these conclusions I would now add that, after having performed this operation twenty-five times, I can see no reason for changing the views then expressed, but I desire to emphasize once more the fact that only specially prepared wire can be used and that silver wire, because it does not coil, is an unsuitable agent.

It has been stated that this operation is useless, because the nature of the lesion is such that cure cannot be effected. If by cure is meant the total disappearance of all signs of the disease there is, of course, no cure; but if by "cure" we mean relief from agonizing pain, diminution in the size of the growth, clearing up of distressing pressure symptoms and prolongation of life when death seems very imminent, then the operation is justified, the more so as it seems to be of little danger. Patient 2 had a very marked bulging mass which is described as being as large as an orange. Inspection now fails to show any such mass. I have yet to see a patient who did not receive at least temporary and marked benefit from wiring and electrolysis.

This operation, like all other operations, largely depends for its success on how it is done. If too much current is used, serious damage and necrosis of tissues may be induced, and I am led to believe that in several cases which have not been reported by others such an error in technic has led to bad results. Thus in several of these patients I am told the current was so strong that the wire "burnt off." Such a current cooks the aneurysm. If the street current is used it is necessary not only that the table on which the patient lies should be insulated, but also that the operator wear thick, rubber-soled shoes and stand on a perfectly dry floor.

1801 Spruce Street.

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[2] Hare, H. A.: The Treatment of Sacculated Aneurysm by Wiring and Electrolysis, THE JOURNAL A. M. A., April 13, 1912, p. 1088.

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**Social Causes of Disease.**—The cause of most epidemic diseases are not individual but social; we must therefore protect one another; there is not a survival of the fittest but a survival of the best protected.

# SOME NOTES ON HAY-FEVER *

HENRY L. ULRICH, M.D.
MINNEAPOLIS

The practitioner does not give hay-fever the attention it deserves. There is a growing conviction not only that hay-fever is a local manifestation, but also that it involves general reactions which bring it into the domain of constitutional diseases.

Those who are interested should read the article by Dunbar,[1] who reveals the whole subject from a historical, etiologic and therapeutic point of view. It is the last word of a master mind, familiar with every detail of the gradual growth of a clinical entity to a more rational and scientific basis.

Blakely,[2] in 1873, was the first to demonstrate the relationship between the pollen of grasses and the disease. These experiments with pollen are most interesting. He collected pollen on glass plates wet with glycerin, proving that pollen was wind-borne. He produced asthma and hay-fever symptoms by inhaling the pollen. He also produced skin reactions, erythemas, by rubbing pollen in scarified areas in the arms and legs. With the rise of bacteriology, Blakely's observations were overshadowed by theories of bacterial origin. From his time to that of Dunbar's communication in 1902-1903, the writings on the etiology of hay-fever offer one of the most weird and fantastic chapters in medicine.

We owe to Dunbar the establishment of the true etiologic basis, namely, that it is a pollen toxicosis. This, in passing, has led Dr. Frank Todd[3] to coin the apt term of "pollenosis" as a fitting name for the disease. Dunbar was able to demonstrate in the blood of hay-fever patients and in experimental animals immune bodies such as amboceptors, precipitins and antitoxins.

By injecting pollen toxin into horses he produced what he thinks is an immune serum which neutralizes the pollen extracts on the mucous membrane or in the test-tube. Since 1903 he has put on the market this antitoxin, called by its trade-name, pollantin. This can be obtained in liquid or dry state. I feel safe in saying that the practical results of this serum have not come up to expectations. Dunbar's explanations for this are that (1) patients do not use the antitoxin early enough — that is, prophylactically, and (2) patients do not use it correctly during the course of the disease. Ten years ago, pollantin was hailed as the real treatment for hay-fever. To-day it is drifting dangerously near the thousands of derelict "cures" for which this disease is so justly famed.

Noon[4] and Freeman,[5] in 1911, working in Wright's laboratory, attempted active immunity in contradistinction to the passive immunity of Dunbar. They injected small quantities of pollen extract, judging their dosage entirely by the conjunctival reaction. An arbitrary unit of reaction was chosen. This unit represented the amount of extract from 0.001 mg. of pollen. Their injections were made at intervals of three or four days. Later in the case, ten-day intervals were used. According to their conjunctival test they were enabled to increase the resistance usually ten times — in one case 250 times.

Altogether, they report twenty-nine cases. Some of these were treated out of season, some during hay-fever season and during the attacks. Of the latter, the highest increase of resistance is ten times the initial units of sensibility. Noon and Freeman's work marks a distinct advance in hay-fever therapy.

Clowes[6] of Buffalo was the first in this country to demonstrate immune bodies — amboceptors and precipitins — in patients suffering with our type of hay-fever. He, too, made experiments with patients out of season, using extremely small doses, 1 c.c. of from 1: 5,000,000 to 1: 500,000 solutions. These were given at intervals of from two to six days. The number of doses ranged from three to fifteen. His unit of resistance was a solution containing the extracts of 1: 20,000,000 gm. of pollen. This is twenty times as dilute as Noon and Freeman's unit. Clowes was able to raise the initial resistance a thousand times. He notes, however, that five months later the resistances had lapsed nearly to the original level.

In the meantime there has been a growing impression that the manifestations of hay-fever are of an anaphylactic nature. Weichert,[7] Wolff-Eisner,[8] Auer[9] and a host of others have expressed themselves along this line. Karasawa[10] was able to produce anaphylaxis with extracts of beans, peas, lentils, rice, sago and wheat. Dunbar[11] himself has studied anaphylaxis produced by male sperm-cells in lower animals.

The argument that hay-fever is possibly a hypersensibility to a foreign protein is no more illogical than the argument that the edemas and eruptions following serum injections are evidences of hypersensibility. Other clinical phenomena such as renal and infectious asthma, spasmophilia and pyloric spasms are examples of similar reactions. According to this theory the proteins of the pollen grains, falling on a diseased mucous membrane, are absorbed by the blood, in which parenteral digestion takes place. These reduction products, by means of a selective action on certain nerve-cell groups, particularly the autonomous centers, produce the irritability in these centers which manifests itself through the erectile tissue in congestion of the nose, in asthma, and, spreading over motor areas, induce general nervous excitation. The local irritability, including itching and burning as well as destruction of mucous membrane (Arthus phenomenon) are truly local manifestations of hypersensibility just as the skin and conjunctival reaction in tuberculosis is a similar phenomenon.

To review the symptoms I quote Bostock's 1819 classic clinical description[12] of an attack of hay-fever:

> When the season approaches the hay-fever patient experiences at first an occasional itching at the inner canthus of the eye, at the caruncle. This itching appears, soon disappears, and may in a few days again assert itself. This time it may be somewhat more annoying and there is seen a definite reddening of the caruncle, perhaps also of the adjacent conjunctiva. Then there occur mild and infrequent attacks of sneezing. Suddenly the condition gets worse. Perhaps

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* Read before the Hennepin County Medical Society, November, 1913.

[1] Dunbar, W. P.: The Present State of Our Knowledge Concerning Hay Fever, Ann. Otol., Rhinol. and Laryngol., 1912, xxi, 277.

[2] Blakely: Referred to by Dunbar (Footnote 1).

[3] Todd, Frank: Jour. Minnesota State Med. Assn., 1908, p. 323.

[4] Noon, L.: Prophylactic Inoculation against Hay-Fever, Lancet, London, 1911, i, 1572.

[5] Freeman, J.: Further Observation on the Treatment of Hay-Fever by Hypodermic Inoculations of Pollen Vaccine, Lancet, London, 1911, ii, 814.

[6] Clowes: Proc. Soc. Exper. Biol. and Med., 1913, x, 69.

[7] Weichert: Wien. klin. Wchnschr., 1904, p. 407.

[8] Wolff-Eisner: Das Heufieber, München, 1906.

[9] Auer: Pop. Sc. Month., 1912, p. 434.

[10] Karasawa: Ztschr. f. Immunitätsforsch. u. exper. Therap., Orig., 1910, v, 509.

[11] Dunbar, W. P.: Ztschr. f. Immunitätsforsch. u. exper. Therap., 1910, vii, 454.

[12] *Quoted by Dunbar (Footnote 1).*

> while taking a walk on a warm sunny day the patient has paroxysmal attacks of sneezing which interfere with his respiration. The eyes itch fiercely, the conjunctiva becomes red as fire and edematous. The patient can no longer breathe through his nose; the mucous lining of the mouth begins to itch, especially the gums. There follows a condition of malaise and general weakness which may become so marked that the patient must take to his bed. He is very depressed, robbed of all his energy, and loses the joy of living. In some cases asthmatic symptoms appear so that during the night the patient cannot rest. Finally many patients suffer with an unbearable itching of the skin. All symptoms may disappear for several days, the patient seems to be well, only to have the symptoms reappear again.
>
> This mysterious changeable condition lasts, as a rule, six weeks and then gradually disappears. The attacks become lighter and more infrequent, resemble those of the onset, and gradually disappear altogether.

This descriptive narrative appears to us rather mild in comparison with our autumnal catarrh. Our catarrh exhibits more severe symptoms, such as extreme irritability of autonomous centers, mainly the nasoglossopharyngeal and vagus groups. This often overspreads the motor areas, giving rise to marked asthenia.

TABLE OF CASES TREATED WITH POLLEN TOXIN

| No. | Name | History | No. of Treatments | Remarks | Results |
|---|---|---|---|---|---|
| 1 | E. A. B. | Turbinates removed in Feb. Inflammation of nose ever since. Hay-fever of 4 weeks' standing. | 5 | .................................... | Considerab'e improvement. |
| 2 | Dr. H.F. | T. B. Deviated septum. Hypertrophy of turbinates of left side. | 5 | Took toxin with him when he left city. Under observation 5 days. Have not heard from him. | Very much improved. |
| 3 | W. J. M. | Hay-fever many years. | 8 | .................................... | Much improved. |
| 4 | M. K. | Hay-fever many years. | 6 | .................................... | Satisfactory. |
| 5 | Mrs. B. | Hay-fever 4 yrs. Bronchitis in the winter; wheezing. | 7 | Much improved at first. Exacerbation Sept. 1; last treatment Sept. 12. Experienced great and permanent relief. | Very satisfactory. |
| 6 | Mrs. A. | Bronchial asthma with exacerbations at hay-fever time and hay-fever. | 7 | Last 2 weeks autogenous vaccine from bronchial sputum. No relief from asthma. | Nose and eye symptoms rel'ved. Asthma not relieved. |
| 7 | Dr. J. D. W. | Hay-fever many years. | 7 | Steady improvement. | Satisfactory. |
| 8 | Miss B. | Hay-fever 10 yrs.; subject to nasal and sinus infection. | 18 | Also pneumococcus vaccine therapy for sinusitis. Some eosinophils; 4.5%. | Satisfactory. |
| 9 | Dr. W. T. | Hay-fever very severe. | 5 | .................................... | Very satisfactory. |
| 10 | Dr. B. | Hay-fever first year. | 1 | Immunity for 1 week; slight attack following this immunity. Very comfortable ever since. | Satisfactory. |
| 11 | Dr. H. S. | Hay-fever for many years; getting lighter of late. | 3 | .................................... | Doubtful. |
| 12 | Dr. J. P. | Hay-fever for years. | 2 | Refuses treatment for fear of anaphylaxis. | Unsatisfactory. |

Whether some of these manifestations are genetically of local or central origin remains to be seen. That there is a dual origin is more likely. At any rate the nervous irritability seems to be more pronounced in autumnal catarrh. Dunbar speaks of thousands of cases he has seen in which there has never been fever. Clowes mentions rise of temperature in his cases, and I have found one case with fever. There is no doubt that rise of temperature would be found a common symptom if systematically looked for.

I review the clinical picture to call attention to the fact that no known infectious process expresses itself in symptoms of this nature. They are entirely too spasmodic, irregular, bizarre, for the well-ordered mechanism of the ebb and flow of immunity which controls infectious processes. The irregularity of time, sequence and intensity suggests still more the hypersensibility of nerve and tissue groups to an irregular protein intoxication, the portal of entry of which is the nose.

For two years I have been observing ragweed. I have confined myself to ragweed because I find that it is the only flowering plant which has a wind-borne pollen during the period between July 1 and September 15. I speedily dismissed the idea of goldenrod as a causative factor in hay-fever, simply because its pollen is not wind-borne. Indeed, it is difficult to remove the pollen from goldenrod blossoms except by most energetic shaking. To collect ragweed pollen, one must be up early, before the sun has had time to warm up the air held in the oily envelope of the pollen grain, for it is by reason of this air and its light weight that the pollen grain is lifted to its aerial flight. Many times after 9 in the morning it was impossible to find pollen on plants in exposed places. The production of pollen from ragweed is most prodigious. Daily for weeks I have been able to dust pollen off flowers in the same bush, even from the same cluster.

I am convinced that ragweed pollen is constantly in the atmosphere of the countryside and the city. Pollen grains could be found daily in receptacles containing water placed in window-sills or outdoors. Liefmann,[12] in the heart of Hamburg during the height of the hay-fever season, collected 250 pollen grains to the square centimeter during twenty-four hours. He estimated by means of an aeroscope that in the middle of a large city there were 308 grains to 1 cubic meter of air. In the neighborhood of a rye-field, one inhales with each breath two or three pollen-grains. Kammann[12] estimated that 20,000,000 pollen grains weighed 1 gm. I have estimated that 1 gm. of ragweed pollen contains 172,800,000 grains.

My extracts were obtained by means of Dunbar's method, which consists in making a 5 per cent. suspension of pollen in distilled water or normal salt, and alternately freezing and thawing the mixture. Clowes' method of removing the oily envelope with acetone and then extracting is an excellent modification. This extract, according to Kammann,[13] contains several proteins. By fractional methods of separation he finds three, two types of globulins and an albumin. The latter is the toxic agent, as far as local action is concerned.

With these extracts I have treated twelve cases of hay-fever during the last season. Subcutaneous injections of very dilute extracts were given at intervals of one, two and three days. The usual dose was 0.5 c.c. of a dilution, never greater than 1: 500,000 nor less than 1:1,000,000. The latter is a more satisfactory and safer dose. I soon found that the conjunctival test for adjudicating the dosage was impracticable. The patients came in all stages of conjunctival inflammation. To attempt to get reactions in a red and swollen surface was futile. I therefore confined myself to the subjective findings at the time of treatment (see the tabulated report).

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[13] Kammann: Beitr. z. chem. Physiol. u. Path., 1904, v, 346.

The most striking features of this experiment, measured purely from clinical results, were: 1. The patients in the majority of instances were relieved partially or wholly from symptoms in from fifteen minutes to two hours. This relief lasted some times a few hours, again for days (one week is the longest). 2. There was a gradual improvement of symptoms in the majority of cases which cannot be explained wholly by a diminution of pollen in the air.

I am convinced from the *manner* of its production and its short duration that I was producing a refractory or inhibitory phase of hypersensibility. The difficulty in proving this statement lies in the lack of experimental evidence in this field of anaphylaxis. Attention has been directed to the more dramatic reactions in anaphylaxis such as shock, the paralyses, the increased coagulation-time of the blood, and thermogenic disturbances. Antianaphylaxis has been demonstrated repeatedly, but there is a growing impression that the refractory or anti stages of anaphylaxis are far more difficult to produce, less constant, and also not so lasting as in infectious processes.

You will note that my point of view differs from that of Dunbar, Noon and Freeman, and Clowes. Whereas they think that they are dealing with an infectious process similar to bacterial infection, I contend that the process is of the nature of a protein toxicosis. Noon and Freeman and Clowes have actually demonstrated not so much an actual immunity as perhaps a refractory stage of the eye- and nose-cells to the local action of the anaphylatoxin (Friedberger[14]). In Dunbar's antitoxin there may be free receptors—antianaphylatoxins—which shunt the local toxin action, thus inhibiting the usual reaction. In the fact that it is not introduced into the general circulation — that its action is purely local and does not reach the autonomous centers—may lie the explanation of the failure of Dunbar's serum. Dunbar will accept in no wise the anaphylactic theory of hay-fever.

Two clinical studies suggest themselves along the thought that hay-fever is a manifestation of hypersensibility:

1. If it can be shown that the muscle-reactions in hay-fever patients are modified just as they are in spasmophiliacs we shall have added another link to the chain of evidence.

2. Recent reports of eosinophilia in animals sensitized to foreign proteins have led observers to think that an increase in oxyphils in the blood is an indication of this condition. If this can be shown to occur in hay-fever, another clinical test can be added to our list. As a matter of fact, Dr. George D. Head has verbally communicated to me that eosinophilia is a common occurrence in those cases giving asthmatic symptoms. In one of my cases under complete control I had the blood studied before and during the season. At no time did the eosinophils go above 4.5 per cent.

### CONCLUSION

The problem of autumnal pollinosis can be approached in three ways:

1. By the removal of the cause, namely, the eradication of ragweed.

2. By the removal of the patient from the ragweed environment.

3. By producing antihypersensibility.

The first proposition is a far more practical plan than one realizes at first thought. Societies of hay-fever sufferers, properly financed as county units, to cover state areas, could readily make ragweed disappear from roads, fields and empty lots.

The second proposition has been the solution of the problem of the favored few.

In the third proposition I see a glimmer of hope for the many who are condemned to this nagging scourge.

Lastly, I feel that in hay-fever, more than in any other clinical entity, is a fruitful field of search both in a clinical and biological sense, for exact measures, which are so essential and as yet so lacking in those vague conditions grouped under the term "hypersensibilities."

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[14] Friedberger: Ztschr. f. Immunitätsforsch. u. exper. Therap., Orig., 1909, ii, 208.

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# RECENT WORK ON THE PHYSIOLOGIC PATHOLOGY OF GLYCOSURIA *

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The advancement which medical knowledge has made during recent years can no doubt be in large part attributed to the closer affiliation which has developed between clinical and laboratory workers. Among the earliest attempts to apply the results of laboratory investigation in the clinic were those made in the case of diabetes, and although the progress achieved in the elucidation of the cause of this mysterious disease may not have been so striking as in the case of some other diseases, there has nevertheless been a steady accumulation of knowledge, which, when intelligently applied, is of immense value in its prophylaxis and treatment.

As attesting the value of laboratory investigations side by side with clinical, it is a noteworthy fact that the physicians who have been most successful in the treatment of diabetes are those who have kept themselves in constant touch with the work of both laboratory and clinic. Many of these men, such as Naunyn, Külz, Lepine, Pavy, Minkowski and von Noorden, have contributed materially to the advancement of our knowledge of the history of sugar in the animal body by laboratory experiment, while at the same time busily engaged in observing and treating cases of diabetes in clinical practice.

One of the most important results of the laboratory investigations has been to show that conditions exhibiting at least some of the symptoms of diabetes in man, more especially glycosuria, can be induced in animals by a multitude of causes. This laboratory experience finds its clinical counterpart in the etiologic, therapeutic and prognostic aspects of diabetes mellitus: etiologically, in the fact that such apparently distinct and separate influences as inheritance, nervous strain and overindulgence in carbohydrate foods all predispose to the disease; therapeutically, in the undoubted benefit which certain cases derive from curtailment of the carbohydrate ingestion, while others benefit more from control of proteins, and prognostically, in the rapid development of the disease in some cases as compared with its gradual betterment in others. These facts would seem to indicate that in the clinical, as in the laboratory experience, we are dealing not with a distinct and separate pathologic entity, but with a variety of conditions having only certain symptoms in common. It is indeed quite uncertain whether there is any variety of laboratory diabetes which can be strictly compared with any clinical form, for even in the case of the diabetes which is produced in animals by removal of the pancreas, there are so many dissimilarities from most of the severe clinical cases that a strict analogy cannot be drawn between the two. We shall see, however, that in spite of these differences, many of the problems which the clinical observer has to face in treating the disease can be satisfactorily studied by work on animals, and many mistakes that might otherwise be made in applying new methods of treatment thereby avoided.

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Facing such difficulties, how then are we to proceed in investigating the cause of diabetes? There is obviously but one way, and that is by collecting and carefully correlating as much information as we can regarding the causes which may produce the main symptoms of diabetes, by careful clinical study in the case of man, or by well-controlled and properly conducted experiments in the case of the lower animals. Of the symptoms of diabetes, glycosuria has naturally been chosen as the most characteristic. Since this symptom may depend merely on a local interference with renal function, and since the essential derangements which are responsible for the development of the diabetic state may already be considerably advanced before any glycosuria makes itself evident, it is more reliable for most purposes to employ as our criterion of diabetes not glycosuria, but hyperglycemia.

In doing this we must be careful, however, to bear in mind the physiologic conditions which govern the relationship between hyperglycemia and glycosuria. It is commonly taught that the kidneys do not permit any, or only a trace of, the blood-sugar to escape into the urine until the percentage in the blood has risen to considerably above the normal level. The kidney has been compared in this connection to the overflow tube in a cistern, the contents of which, representing the blood-sugar, are ordinarily discharged by other paths. It is only when these paths in some manner do not discharge quickly enough, or the inflow becomes too rapid, that the level rises until the overflow is reached.

For many purposes this analogy has proved most useful, but it is far from being a strictly true one. It explains why a temporary increase in blood-sugar, such as that produced by stimulation of the splanchnic nerves or by parenteral administration of sugar, is unaccompanied by any demonstrable glycosuria until the blood-sugar has risen to a certain height, after which the glycosuria runs more or less parallel with the hyperglycemia.[1] It also applies in the early stages of clinical diabetes, but it does not apply in the more advanced cases, either in those that are acute, in which there is usually much more sugar in the urine than would be expected from the amount present in the blood, or in chronic cases, in which there may be no demonstrable glycosuria and yet a marked degree of hyperglycemia. Some change in the excretory function of the kidney must therefore be considered as one of the results of the diabetic state in man, a conclusion for which evidence is furnished by the observation that the same degree of hyperglycemia causes more glycosuria in the diabetic than in the normal man.[2]

Even when the kidney itself is healthy this parallelism only obtains provided there is no disturbance in its blood-flow. Consequently we find that the excretion of sugar into the urine is readily affected by changes in the arterial blood-pressure. Thus a certain degree of hyperglycemia may cause marked glycosuria when the blood-pressure is normal, but none at all when it is subnormal.[3]

There are certain forms of experimental glycosuria which seem to owe their origin to no other lesion than one so affecting the kidney as to make it excrete large quantities of sugar from normal blood. These include, not only the important form of diabetes, which is caused by phlorhizin, but also that which occurs after poisoning by such metals as uranium, etc.[4] It is possible that there may be a clinical variety of renal glycosuria. Such cases could be diagnosed with certainty only by comparisons between the sugar concentrations of blood and urine, although a strong suspicion of their existence would be furnished by finding that the ingestion of excess of carbohydrate food did not increase the glycosuria. It is very doubtful, however, if such purely renal cases exist.[5]

I need scarcely pause to point out that although phlorhizin glycosuria, so far as it is unaccompanied by hyperglycemia, is unlike the clinical varieties of glycosuria, this does not in the least diminish the great importance of the studies which have been made by Lusk and his pupils concerning the nature of the faulty metabolism which it entails. Indeed, I do not overshoot the mark when I assert that more accurate knowledge concerning the possible antecedents of dextrose in the animal body has been gleaned by investigations on this form of experimental glycosuria than by those made on any other, either experimental or clinical; for, by establishing a constant drain of dextrose from the blood, phlorhizin calls into play all the agencies which are available in the organism for the manufacture of new supplies. It may be considered as the standard method for studies on glyconeogenesis.

In choosing hyperglycemia as the most characteristic symptom of an abnormal state of carbohydrate metabolism, we must be careful to remember that it is not necessarily a sign of diabetes.

Disregarding for the present the distinct degrees of hyperglycemia which occur in all diseases that are associated with asphyxial conditions or with pyrexia,[6] we must bear in mind that a distinct increase in blood-sugar occurs as a physiologic condition after the ingestion of any food that is rich in carbohydrates. Although this has been known for several years, it has recently been made the subject of more thorough investigation, both in the lower animals and in man. Bang and his collaborators,[7] using a so-called micro-method, estimated the sugar concentration of the blood in rabbits during short intervals of time following the giving by stomach-tube of quantities of from 2 to 10 gm. each of various sugars or starches. An increase in blood-sugar was evident in fifteen minutes, a maximum amounting to about double that of the normal being reached in about an hour, after which there was a gradual fall to the old level, which was attained in about three hours. This *postprandial hyperglycemia*, as we may call it, developed more quickly, and was more marked, in starved than in recently fed animals, and it became less and less evident when the administrations were repeated, until ultimately the 10 gm. of dextrose could be ingested without producing any effect on the blood-sugar. Galactose, maltose and saccharose, given in the same amounts, caused a similar rise, but the return to the normal level was delayed. Fisher and Wishart,[8] by giving 50 gm. of dextrose by stomach-tube, to dogs, found that hyperglycemia occurred during the succeeding hour, after which the blood-sugar quickly fell to normal, apparently in large part because of dilution of the blood by water absorbed from the tissues. At least it was found by making hemoglobin estimations that during the hyperglycemic stage the amount of water in the blood remained unchanged, but that as the hyperglycemia decreased, the blood became more diluted. As this occurred, there was evidence of increased combustion of carbohydrates, as shown by a rising of the respiratory quotient and by a greater energy output.

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[1] Rolly and Oppermann: Biochem. Ztschr., xlix, 278. Macleod, J. J. R.: Diabetes, Its Pathological Physiology, New York, Longmans, Green & Co., 1913.

[2] Jacobson, A. T. B.: Biochem. Ztschr., 1913, lvi, 471.

[3] Macleod: Diabetes, Its Pathological Physiology.

[4] MacNider: Jour. Pharmacol. and Exper. Therap., 1912, 423.

[5] Weiland: Deutsch. Arch. f. klin. Med., 1911, cii, 167.

[6] Schumm and Hegler: Mitteilungen aus den Hamburger Staats [illegible]); 1913, xiii, 187. Oppermann a[illegible], xlviii, 187, 200, 259, 471; xlix, 27[illegible] klin. Med., 1908, xcii, 217.

[7] B[illegible] 1913, Jacobson: See Footnote 2. [illegible]viii, 106. Welz: Arch. f. exper. Path. u. Pharmacol., 1913, lxxiii, 159.

A most significant fact was brought to light, particularly by Bang's researches, namely, that 10 gm. of starch produced exactly the same effect on the blood-sugar as 10 gm. of dextrose, provided it was given to previously starved rabbits. Given to rabbits having food already in the stomach, the starch had little effect. Starch-rich foods, such as potatoes and turnips, produced the same results as starch itself; they readily caused hyperglycemia on an empty stomach, but had little effect when the stomach was full. Evidently the rate with which the starchy food passes from the stomach to the intestines determines in large degree the extent to which it is likely to produce hyperglycemia.

Before we seek for any application of the results obtained from experiments on lower animals that may aid us in the diagnosis and treatment of diabetes in man, we must obtain evidence that in man similar changes in the blood-sugar accompany the ingestion of carbohydrates. Such caution is particularly necessary when we are dealing with carbohydrate metabolism, because the factors which govern the various stages in the breakdown of sugar may vary considerably in different animal groups. Even in so comparatively simple a condition as that which we are considering, the dog and the rabbit, for example, do not behave alike, for in the former not only is the hyperglycemia which follows sugar ingestion less in degree than it is in the case of the rabbit, but there is a greater tendency for glycosuria to become established. Without actually trying, it would obviously be very risky to assume that what occurs in the rabbit will also occur in man. Jacobson[2] has, however, furnished us with evidence that it does, for, after giving 100 gm. of dextrose to normal persons before breakfast, he found that even in so short a time as five minutes an increase was evident in the blood-sugar, and that the hyperglycemia became more marked, until in about thirty minutes it had attained a maximum, after which it fell to reach its normal, or even a subnormal, level in about two hours. From the clinical point of view the most significant outcome of the researches was the discovery that in six out of fourteen persons, examination of the urine voided at short intervals after taking 100 gm. of *starch*, revealed the presence of glycosuria, which was also the case in eight of the cases after taking 100 gm. of dextrose. Practically the same results were obtained after giving an amount of white bread (167 gm.) capable of yielding 100 gm. of dextrose. The development of the hyperglycemia became much slower when digestion was prolonged by giving a large quantity of butter along with the bread. No change was produced in the blood-sugar after feeding with proteins alone.

The conclusion that the only difference between sugar and starch, so far as they influence carbohydrate metabolism, rests in their relative rates of absorption, is most strikingly confirmed by these observations.

A fundamental principle that must guide us in the treatment of early cases of diabetes in man is brought to light by these researches. We shall see later that the object which we must aim at in this treatment is the maintaining of the sugar content of the blood at as low a level as possible, and it is evident from the foregoing observations that to do this the ingestion not only of sugar, but of starchy foods as well, requires careful regulation. Whatever carbohydrates are given must not only be well below the tolerance limit, but they should be such as are so slowly broken down to sugar that no unphysiologic degree of hyperglycemia is permitted to develop.

The decrease in glycosuria which opium causes in many diabetics may be due to the retarding influence of this drug on the emptying of the stomach. Apart from the use of opium, however, there are several ways in which we may possibly bring about the delay in the absorption of starch. Three of these are: (1) By mixing the starch with fats; (2) by choosing foods in which the starch grains are naturally more or less protected from digestion, and (3) by choosing varieties of starches that are themselves only slowly digested.

These considerations naturally lead us to the question as to whether the undoubted benefit which certain cases of diabetes derive by feeding with oatmeal, in the absence of other carbohydrates and animal proteins, may not depend on the slow rate at which the starch in this food is digested and absorbed. Cohnheim and Klee have shown by observations on dogs having duodenal fistulas that oatmeal causes very much less pancreatic juice to be secreted than when an equivalent amount of wheaten bread or potatoes is given.[9] Although these two facts concerning oatmeal, namely, that it calls forth but little pancreatic secretion, and that it is a readily tolerated form of starchy food in diabetics, seem to be most simply correlated in the foregoing manner, yet we must not overlook another possible explanation for the benefit of the oatmeal treatment, namely, that by holding down the intestinal secretion of pancreatic juice, a better chance is given the pancreas to furnish the internal secretion or hormone whose deficiency is thought to be in some way associated with the cause of the disease. The well-known fact that the oatmeal treatment is not likely to meet any success unless such foodstuffs as animal proteins and wheat starch are simultaneously withheld is readily explained on account of the readiness with which these foods excite pancreatic secretion. In the same manner the benefit of alkali treatment may be accounted for. It is more probably in some such manner as that discussed above that oatmeal acts in diabetes than, as has been suggested, by its furnishing to the organism some vitamin necessary for the utilization of sugar. I refer to some such substance as has been shown to be necessary for the prevention of beriberi in rice-feeders and to be important for proper increase in body-weight in growing animals.

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[8] Fisher and Wishart: Jour. Biol. Chem., 1912, xiii, 49.

[9] Baumgarten and Grund: Deutsch. Arch. f. klin. Med., 1911, p. 169. Cohnheim and Klee: Ztschr. f. physiol. Chem., 1912, lxxviii, 464.

So far as these laboratory observations apply to the management of early cases of diabetes, we may sum up by saying that the earliest indication of derangement in carbohydrate metabolism is that the postprandial hyperglycemia is greater and persists longer than it should, becoming progressively more and more marked, until ultimately the separate periods fuse into one continuous hyperglycemia, which for some time is probably maintained at a fairly constant level by overflow of the excess of sugar into the urine. Ultimately, however, the kidneys, suffering possibly because of the constant toxic influence of the excess of sugar, become less permeable toward it, and again the hyperglycemia begins to mount. Although the literature does not, so far as I am aware, contain a sufficiently complete series of records of blood-sugar estimations in diabetes, especially in its earlier stages, to justify the positive assertion that this course is run by every case, yet very strong evidence that it is so is furnished by the observation that glycosuria is evident in early stages of diabetes only after taking food. The mixed twenty-four-hour specimen, when tested, however carefully, by the various qualitative tests for sugar, may be normal, whereas the specimen voided during the hour or two immediately following a meal may give a distinctly positive test. For practical purposes postprandial glycosuria must undoubtedly be considered as the initial symptom of diabetes, provided, of course, that excessive amounts of sugar have not been taken. Its occurrence should serve as an indication that the diet must be altered, for although we cannot cure a late case of diabetes, we can, by preventing glycosuria, if not indefinitely, yet for a long time, retard the development of incipient cases into those of a more serious character.

In employing hyperglycemia as our most trustworthy criterion of disturbed carbohydrate metabolism in experiments on anesthetized animals, many precautions must be taken so as to avoid, or at least discount, the effects which fright, anesthesia, body temperature, etc., may have in causing that condition.[10]

One other question concerning the sugar in the blood remains to be discussed, and that is its condition, whether free or combined. This does not mean combined in the sense that it is no longer included in our blood-sugar estimations, but combined in such a manner as to be readily split off. I do not intend to go into all the outs and ins of this most troublesome question, but I must at least pause to explain its significance, and to mention some of the most recent work which has been brought to bear on its elucidation. The hypothesis is that most of the dextrose exists in some sort of loose combination, possibly of physiochemical nature, with certain of the blood constituents, and that only a small fraction is free. It is further supposed that it is only after it has become thus combined that the sugar can be utilized by the tissue-cells. Of the older writers, it was Pavy who most insistently upheld this view, and there are few who have not in some of their writings expressed some adherence to it. The most recent advocate is Allen,[11] whose most exhaustive treatise on diabetes is indeed based on the idea that all the circulating sugar of the normal body exists in some sort of loose combination, as which it is assimilated by the tissues.

It is impossible to settle this question by means of chemical investigation of the blood. Even the brilliantly conceived experiments of Michaelis and Rona are insufficient. It was found in these that when samples of sterile unclotted blood were dialyzed against a series of isotonic solutions each containing a different percentage of dextrose, diffusion of dextrose in one direction or the other occurred in all save one case, namely, in that in which the percentage of dextrose in the outside fluid was exactly equal to the total sugar content of the blood. Such a result can be interpreted only by assuming that all of the sugar exists in the blood in a freely diffusible state, a conclusion which is supported by the results of the colloidal precipitation experiments of the same workers. The chemical evidence is therefore all in favor of the view that the blood-sugar exists in a free state. On what grounds, then, do so many authorities insist that the sugar is practically all combined? They do so on biologic grounds, namely, because of the difficulty of explaining, in any other way, why the blood-sugar does not constantly leak into the urine. Pavy, for example, insists that if it were free in the blood, sugar, like any other body of small molecular weight, would flow off in the urine; and exactly the same line of argument is contained in Allen's statement that "in normal animals all sugar not injected intravenously reaches the circulation in combination with a colloid," so that "it behaves as a typical colloid, not only in failing to pass into the urine, but also in depressing the excretion of this fluid. When, however, sugar is added directly to the blood, it fails to become thus combined, with the result that like any other crystalloid it escapes in the urine and stimulates diuresis." These conclusions are based on the observation that when dextrose is given intravenously to a normal animal, it causes diuresis, whereas anuria results when it is given in any other way. To explain these differences it is supposed that the sugar molecule, in passing through the endothelial wall of the capillaries, combines with some substance, as a result of which the sugar becomes available for incorporation in, and utilization by, the tissues, which, in the free state, it is not. This substance is supposed to be related to the internal secretion of the pancreas, and it has been called an amboceptor to indicate that it links the dextrose molecule to the tissues.

Upholders of these views, however, do not stop short in merely explaining how sugar circulates in the normal animal. They go further, for they tell us that "deficiency of the amboceptor is diabetes"; in other words, they assert that the essential lesion in diabetes is a failure of the sugar that is absorbed from the intestine to become united with amboceptor, as a consequence of which it circulates in a free state and is not available for combustion in the tissues. This free sugar, acting like a crystalloid, stimulates the kidney to diuresis and itself escapes by this path. Allen has cleverly defended this hypothesis against most of the criticisms that could be brought against it, although I for one am not yet quite convinced that the striking differences in diuretic effect which he found according to the manner of administration of the sugar may not be largely a question of the rate at which the sugar becomes added to the blood. It is at least significant that when the intravenous injections of sugar are made very slowly, the renal function behaves exactly as it does when the slower subcutaneous or intestinal paths of absorption are traversed.[12] The remarkable disappearance from the blood which we have seen to occur when dextrose is intravenously injected in eviscerated animals shows also that incorporation with the tissues is possible without any amboceptor attachment in Allen's sense.

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[10] Hirsch and Reinbach: Ztschr. f. physiol. Chem., 1913, lxxxvii, 122. See also references in Footnote 6.

[11] Allen: Glycosuria and Diabetes, Boston, 1913.

It has been common to consider that glycogen is nothing more than a storage material for the carbohydrate which the organism does not require for its immediate uses. Some have thought, however, that glycogen, besides being a storage material, is likewise a necessary preliminary stage in the metabolism of sugar; in other words, that no sugar is burned unless it has passed through a glycogen stage. Time will not permit me to say more with regard to this question than that there is so far no conclusive evidence which would enable us to decide it one way or the other. That liverless animals can burn injected sugar, or that isolated muscular tissues use it, is no proof that the sugar has been directly used, for the muscles contain glycogen. On the other hand, the glycolytic powers of blood are exactly the same toward ordinary dextrose as toward dextrose produced by the diastase of the blood or liver acting on glycogen.[13]

Although of the highest importance as showing the manner in which carbohydrates behave immediately after they are ingested, the researches which we have so far considered bring no light to bear on the nature of the disturbances which may cause excessive amounts of dextrose to pile up in the blood, independently of increased ingestion of carbohydrates. They inform us as to how excess of ingested sugar may be disposed of, but they do not explain why in severe forms of diabetes there comes to be a constant and uncontrollable new production of sugar, or glyconeogenesis, in the organism itself. To explain this our attention must be turned to a study of the conditions which bring about excessive sugar-production in laboratory animals. At the outset of such an investigation, however, we encounter a serious difficulty in the multiplicity of experimental conditions which may cause hyperglycemia and glycosuria. It becomes necessary to adopt some classification. To start with, a classification can readily be made into transient and permanent forms of hyperglycemia. There is practically but one form of permanent experimental hyperglycemia, namely, that which follows complete removal of the pancreas, and, since the behavior of the animal in this condition is in many respects like that of the severely diabetic patient, it has been chosen as the experimental prototype of the clinical disease. Most forms of transient experimental hyperglycemia are more or less dependent on stimulation of those portions of the nervous system that exercise a control over the glycogenic function of the liver. The cause of the difference between the two forms is, therefore, that in the transient form the excess of sugar is derived from no other source than the glycogen reserves of the liver and muscles, whereas in the permanent form it is derived only from this source until no more glycogen remains, after which it comes from protein or possibly from some varieties of fat. An excessive hepatic glycogenolysis occurs as the first stage in both forms of experimental diabetes, so that an understanding of the nature of the factors which control the glycogenic function of the liver, and of the conditions which may lead to a failure of this control, is fundamental to intelligent investigation of the diabetes problem. Although it has so far been impossible by any kind of disturbance of the nervous system to create a diabetic state in laboratory animals which is comparable with that which follows removal of the pancreas, yet there is abundance of clinical evidence to show that a certain nervous element does enter into the causation of diabetes mellitus. The frequent occurrence of diabetes in those predisposed by inheritance to neurotic conditions, or in those whose daily habits entail much nerve-strain, and the aggravation of the symptoms which is likely to follow when a diabetic patient experiences some nervous shock, all point in this direction.

Diabetes is common in locomotive engineers and in the captains of ocean liners, that is to say, in men who in the performance of their daily duties are frequently put under a severe nerve-strain. It is apparently increasing in men engaged in occupations that demand mental concentration and strain, such as in professional and business work. Cannon[14] found glycosuria in four out of nine students after a severe examination, but only in one of them after an easier examination. In the urine of twenty-five members of a famous football squad, sugar was found present immediately after a keenly contested game in twelve. Anxiety and excitement were its cause, for five of the twelve were substitutes who did not get into the game.†

Although these nervous conditions, by excitement of hepatic glycogenolysis, produce at first nothing more than an excessive discharge of sugar into the blood, a condition which is exactly duplicated in our laboratory experiments by stimulation of the nerve-supply of the liver, their repetition gradually leads to the development of a permanent form of hyperglycemia. To prevent the repetition of these transient hyperglycemias must be our aim in the treatment of the early stages of the disease. This may be done partly by control of the diet and partly by removal of any possible cause of nerve-strain.

The simplest experimental condition which illustrates the relationship between the nervous system and the blood-sugar is electrical stimulation of the great splanchnic nerve in animals in which, by previous feeding with carbohydrates, a large amount of glycogen has been deposited in the liver. By examination of the blood as it is discharged into the vena cava from the hepatic veins, the increase in blood-sugar is very evident in from five to ten minutes after the first application of the stimulus, but it is not until later that a general hyperglycemia becomes evident. The conclusion which we may draw from these results is that the splanchnic nerve contains efferent fibers controlling the rate at which glycogen becomes converted to dextrose. The center from which these fibers originate is situated somewhere in the medulla oblongata, for the irritation that is set up by puncturing this portion of the nervous system with a needle yields similar results to those which follow splanchnic stimulation. It is natural to assume that there must be afferent impulses running to this center. Such impulses have indeed been described in the vagus nerves, but their demonstration is by no means an easy matter on account of the disturbance in the respiratory movements which stimulation of the central ends of these nerves entails. The changes which such disturbances bring about in the aeration of the blood may in themselves be responsible for the hyperglycemia. This much can at least be said: that when the respiratory disturbances are guarded against, as by intratracheal insufflation of oxygen, vagal hyperglycemia is much less marked, if not entirely absent. But this question requires more thorough investigation.

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[12] Pavy and Godden: Jour. Physiol., 1911, xliii, 199.
[13] Macleod: Jour. Biol. Chem., 1913, xv, 497.
[14] Cannon: Am. Jour. Physiol., 1914, xxxiii, 356.
† Cannon: Private communication.

There are two explanations possible for the increased glycogenolysis which follows the stimulation of the efferent fibers in the splanchnic nerves: either they exercise direct control over the glycogenic functions of the hepatic cells, or they govern the discharge from some ductless gland of an internal secretion or hormone which excites the glycogenolytic process. From their anatomic position, the adrenals are to be thought of in this connection, and evidence that they really do perform such a function has seemed to be furnished by the fact that after they are extirpated, splanchnic stimulation no longer produces hyperglycemia,[15] nor, indeed, does puncture of the medulla.[16] Not only this, but there is no doubt that the nervous system, acting by way of the splanchnic nerves, does exercise a control over the discharge of the internal secretion of the adrenal gland,[17] and, moreover, that extracts of the gland, which we must suppose contain the internal secretion, cause hyperglycemia. But on theoretical grounds alone, certain difficulties immediately present themselves in accepting this as the mechanism by which the nervous system controls the sugar output of the liver, for if increased sugar formation in the liver is dependent on a discharge of epinephrin, why should this secretion be caused to traverse the entire circulation before reaching the liver?

There are, besides, certain experimental facts which do not conform with such a view. Thus, after complete severance of the hepatic plexus of nerves, stimulation of the splanchnic nerve does not cause the usual degree of hyperglycemia, whereas electric stimulation of the peripheral end of the cut plexus does cause it. On the one hand, therefore, there is evidence that stimulation of the efferent nerve-path above the level of the adrenals has no effect on the sugar-production of the liver in the absence of these glands, and on the other, we see that when they are present, stimulation of the nerve-supply of the liver is effective, even though the point of stimulation is beyond them. There is but one conclusion that we may draw, namely, that the functional integrity of the efferent nerve-fibers that control the glycogenolytic process of the liver depends on the presence of the adrenals, very probably on the hormone which the glands secrete into the blood. This conclusion is corroborated by the fact that stimulation of the hepatic plexus, even with a strong electric current, some time after complete removal of both adrenals, is not followed by the usual degree of excitement of the glycogenolytic process.

I have called attention to these experiments because of the light which they throw on the relationship existing between the nervous, and at least one form of hormone control of the sugar-output of the liver. They indicate that when a sudden increase of blood-sugar is required, the glycogenic center sends out impulses which not only act on the hepatic cells, but also simultaneously influence the adrenals in such a manner as to facilitate the passage of the nerve impulse on to the liver-cells. The fact elicited by Cannon and his co-workers[18] and by Elliott, that hypersecretion of epinephrin occurs during conditions of deep emotion, fright, fear, etc., becomes doubly interesting when we consider that these conditions also lead to hyperglycemia. It seems natural enough to assume that the discharge of nervous energy which occurs in man in emotional states likewise affects both the adrenal activity and the glycogenic function of the liver.

We are as yet quite in the dark as to the mechanism by which the nerve impulse brings about increased glycogenolysis. Many possibilities must be borne in mind. It will be remembered that the glycogen is deposited in the cytoplasm of the liver-cell in somewhat irregular masses, being possibly combined with some form of sustentacular substances. Our present problem is to explain how it comes about that these masses of glycogen are suddenly discharged from the cells as dextrose when the nerve-supply is stimulated.

The first thing to be thought of is an increase within the liver-cell of the ferment which hydrolyzes glycogen to dextrose. But this does not seem to be the mechanism, for it is impossible to show that there is any more of this ferment in an extract prepared from a liver in which active glycogenolysis is in progress than in one from a liver that is quiescent in this regard.[19]

It is well known that enzyme activities may become most markedly altered by slight changes in the chemical and physical nature of the environment in which they act. Diastatic enzymes are particularly susceptible to the reaction of their environment, a very slight degree of acidity, as measured by the H ion concentration favoring, whereas a trace of alkalinity markedly depresses. That this favoring action of acid may occur in the case of the diastase of the intact liver has been well established, partly by studying the effect which is produced on sugar tolerance by administering acids by way of the alimentary canal,[20] and partly by studies on post-mortem glycogenolysis.[21] It might be thought then that the nerve-impulse sets free in the liver-cell a certain amount of acid, which being produced locally, would encourage diastatic action before it became neutralized. This liberation of free acid could obviously be dependent on a curtailment in the blood-supply of the hepatic cell, thus producing a local accumulation either of carbonic or of other less completely oxidized acids. That vascular changes do occur in the liver when the hepatic nerves are stimulated,[22] and that such changes may in themselves alter the rate of glycogenolysis, are well-established facts.[23] The accelerating effect of epinephrin on the glycogenolysis which is occurring in a perfused liver outside the body[24] may be explained as due to limitation of blood-supply on account of vasoconstriction; but until such a local production of acid is actually demonstrated in the liver-cell, it would be unsafe to give this hypothesis too much weight.

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[15] Macleod and Pearce, R. G.: Am. Jour. Physiol., 1912, xxix, 419.

[16] Mayer, A.: Compt. rend. Soc. de Biol., 1908, lxiv, 219.

[17] Kahn: Arch. f. d ges. Physiol. (Pflüger's), 1911, cxl, 209; 1912, cxlvi, 578.

[18] Cannon and De La Paz: Emotional Stimulation of Adrenal Secretion, Am. Jour. Physiol., 1911, xxviii, 64.

[19] Macleod and Pearce, R. G.: Am. Jour. Physiol., 1911, xxviii, 403.

[20] Elias: Biochem. Ztschr., 1913, xlviii, 120. Elias and Kolb: ibid., 1913, lii, 331. Murlin and Kramer: Jour. Biol. Chem., 1913, xv, 365.

[21] Macleod and Pearce, R. G.: Am. Jour. Physiol., 1911, xxvii, 341.

[22] Burton-Opitz: Quart. Jour. Physiol., 1910, iii, 197.

[23] Masing: Arch. f. exper. Path. u. Pharmacol., 1912, lxix, 431.

[24] Fröhlich and Pollak: Zentralbl. f. Physiol., 1913, xxiv, 1326. Bang: Biochem. Ztschr., 1913, xlix, 81.

Another possibility is that the glycogen, on account of its combination with a sustentacular material, is ordinarily removed from the influence of the intrahepatic glycogenase, and that the nerve-impulse acts by disrupting this combination and thus exposing the glycogen to attack. In contrast to the preceding, we may call this the mechanical hypothesis. It deserves serious consideration, for it has been shown that very little post-mortem glycogenolysis occurs in the intact liver of frogs in winter — even though at this time the organ contains an excess of glycogen — but glycogenolysis becomes marked when the liver is broken down by mechanical means.[25]

There is, indeed, some evidence that the glycogen is itself expelled from the liver-cell into the lymph-spaces, where it is converted to sugar by the glycogenase, which the fluid of the spaces contains in large amount. Thus, Ishimori,[26] working in Hofmeister's laboratory, found by microscopic examination of sections of the rabbit's liver stained for glycogen by Best's carmin method, that some time after *piqûre* had been performed, the glycogen masses were found to have been irregularly discharged from the lobules, some of them being actually present as such not only in the interlobular lymph-spaces, but also in the venous radicals, whereas that which remained in the lobule was distributed in an irregular fashion. The conclusion seems justified that the nerve-impulse causes glycogen itself to be discharged from the cell into the lymph-space, where, being freely exposed to the glycogenolytic enzymes therein present, it very quickly becomes hydrolyzed to sugar. The extrusions of zymogen granules and vacuoles are quoted as examples of processes of a similar nature occurring in other cells. The increased vascularity of the liver in *piqûre* is significant in light of these researches.

To sum up, we may conclude that the nerve-impulse that brings about an increased discharge of dextrose from the liver does so either by producing in the liver-cells some chemical change which facilitates the action of the glycogenase on the glycogen, or by causing the glycogen masses to become dissociated from the protoplasm so that they become susceptible to the intracellular enzymes, or become extruded from the cell so that they are attacked by the glycogenase which exists in the neighboring lymph- and blood-vessels.

There is only one form of experimental diabetes, however, namely, that due to removal of the pancreas, which can be considered as analogous with the severer forms of the disease in man. It is true that disturbances in carbohydrate metabolism, sometimes severe enough to cause glycosuria, are also produced by disturbances in the functions of other ductless glands, for example, by removal of more than two parathyroids, or by conditions which cause a hypersecretion of the hypophysis of the pituitary gland; but there is no evidence that permanent diabetes, as encountered in clinical practice, bears any relationship to lesions in these glands. On the other hand, experimental pancreatic diabetes can be made to simulate very closely the disease in man. This was first of all demonstrated by Sandemeyer, who found that if not all but the greater part of the pancreas were removed, the animals for some months, if at all, were only occasionally glycosuric, but later became more and more frequently so, until at last the condition typical of complete pancreatectomy supervened. Similar results have more recently been obtained by Thiroloix and Jacob, in France, and by Allen[11] in this country. These investigators point out that different results are to be expected according to whether the portion of pancreas which is left does, or does not, remain in connection with the duodenal duct. When this duct is ligated, atrophy of any remnant of pancreas that is left is bound to occur, and this is associated with rapid emaciation of the animal, diabetes and death. When the remnant surrounds a still patent duct, a condition much more closely simulating diabetes in man is likely to become developed, one, namely, in which there is, for some months following the operation, a more or less mild diabetes, which, however, usually passes later into the fatal type. It is, of course, difficult to state accurately what proportion of the pancreas must be left in order that this interesting condition may supervene. Leaving a remnant amounting to from one-fifth to one-eighth of the entire gland is commonly followed by a mild diabetes, whereas if only one-ninth or less is left, a rapidly fatal type develops. As in clinical experience, the distinguishing feature between the mild and the severe types of experimental pancreatic diabetes is the tolerance toward carbohydrates. In the mild form, no glycosuria develops unless carbohydrate food is taken; in the severe form, it is present when the diet is composed entirely of flesh. It is thus shown that "by removal of a suitable proportion of the pancreas, it is possible to bring an animal to the verge of diabetes, yet to know that the animal will never of itself become diabetic. . . . Such animals, therefore, constitute valuable test objects for judging the effects of various agencies with respect to diabetes" (Allen). It therefore becomes theoretically possible to investigate, on the one hand, other conditions which will have a similar influence to removal of more of the gland, or, on the other, conditions which might prevent the incidence of diabetes, even though this extra portion of pancreas is removed. From the work which he has already done, Allen believes that he has sufficient evidence to show that the continued feeding with excess of carbohydrate food will surely convert a mild into a severe case, and in one experiment he succeeded in bringing about the same transition by performing puncture of the medulla; that is, by creating an irritative nervous lesion. By none of the other means usually employed to produce experimental glycosuria could the bordering case be made diabetic, although one such animal became acutely diabetic after ligature of the portal vein. To the clinical worker the value of these results lies in the fact that they furnish experimental proof that a so-called latent case of diabetes, that is, one that has a low tolerance value for carbohydrates, may be prevented from developing into a severe case by proper control of the diet. Attempts to show whether or not there are any conditions which might bring about improvements in animals that were just diabetic have not as yet been sufficiently made to warrant any conclusions that could help us in the treatment of human cases. The encouragement of the internal pancreatic secretion by diminution of that discharged into the intestine has already been referred to.

The certainty with which diabetes results from pancreatectomy in dogs, as well as the frequent occurrence

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25. Grode and Lesser: Ztschr. f. Biol., 1913, lx, 371. Lesser: Biochem. Ztschr., 1913, lii, 471.

26. Ishimori: In Hofmeister: Sammlung der von der Nothnagel-Stiftung veranstalteten Vorträge. 1913. i.

of demonstrable lesions in the pancreas in diabetes in man, leaves no doubt that this gland must be in some way essential in the physiologic breakdown of carbohydrates in the normal animal, but how, we cannot at present tell. All we know is that the first change to occur after the gland is removed is a sweeping out of all but a trace of the glycogen of the liver, although the muscles may retain theirs; indeed, in the cardiac muscle there may be more than the usual amount.[27] Nor can any glycogen be stored in the liver when excess of carbohydrates is fed. After the glycogen has disappeared, a new process sets in, namely, that of glyconeogenesis, which, as its name indicates, consists of a manufacture of new sugar out of other than carbohydrate molecules. It is possible that more or less glyconeogenesis occurs in the animal body in health, and that the process merely becomes exaggerated in diabetes. Be that as it may, the fact remains that in this disease the tissues come to melt away into sugar, and all the symptoms of acute starvation, associated with certain others that are possibly due to a toxic action of the excess of sugar or of other abnormal products in the blood, make their appearance.

So far it might be permissible to consider an overproduction of dextrose as the cause of the hyperglycemia of pancreatic diabetes, just as we have seen it to be of these forms of hyperglycemia that are due to stimulation of the nervous system; but this cannot be the case, for another very definite abnormality in metabolism becomes evident, namely, an inability of the tissues to burn sugar. This fact is ascertained by observing the respiratory quotient, which is the ratio between the volume of carbon dioxid expired and the oxygen absorbed. When dextrose is added to the blood in a normal animal, the quotient rises almost, if not entirely, to unity, but however much may be added in the case of a completely diabetic animal, no change occurs. Some investigators have endeavored to explain this lowering of the quotient in other terms than that it indicates an inability to burn sugar, but the recent work of Verzár and of Murlin[28] removes all doubt about the matter.

There are, therefore, two essential disturbances of carbohydrate metabolism in diabetes, overproduction of sugar and abolition of the ability of the tissues to use it. It becomes important for us to see whether the tissues exhibit this inability to use sugar when they are isolated from the animal, for if they should, a much more searching investigation of the essential cause of their inability would be possible than is the case when they are functioning along with the other organs and tissues. I need not here mention the earlier experiments of Lépine and his pupils, who thought that diabetic blood did not possess the glycolytic power of normal blood; or of those of Cohnheim, who believed that mixtures of the expressed juices of muscle (liver) and pancreas, although ordinarily destroying dextrose, failed to do so when they were taken from a diabetic animal. The failure to show a depression of glycolytic power by these methods prompted Knowlton and Starling[29] to investigate the question whether any difference is evident in the rate with which dextrose disappears from a mixture of blood and saline solution used to perfuse a heart outside the body, according to whether the heart was from a normal or a diabetic dog. In the first series of observations which these workers made, it was thought that the heart of a normal animal used dextrose at the rate of about 4 mg. per hundred grams of heart substance per minute; whereas that of a diabetic (depancreatized) animal used less than 1 mg. If such striking differences in the rate of sugar consumption could make themselves manifest for so relatively small a mass of muscular tissue as that of the heart, it is permissible to assume that a much more striking difference could be demonstrated when the perfusion fluid is made to traverse all or practically all of the skeletal muscles, as well as the heart. For this purpose an eviscerated animal may be employed; that is, one in which the abdominal viscera are removed after ligation of the celiac axis and mesenteric arteries, and the liver is eliminated by mass ligation of its lobes. To avoid the necessity of anesthesia the cerebral vessels are also tied off. R. G. Pearce and I[30] have found that the rate at which dextrose disappears from the blood in such a preparation, although very irregular, is in no way different in completely diabetic as compared with normal dogs. We were thus unable to confirm any of Knowlton and Starling's earlier conclusions. Patterson and Starling[31] have subsequently shown that a serious error was involved in the earlier perfusion experiments, partly on account of a remarkeble but irregular disappearance of dextrose from the lungs, and partly because the diabetic heart may contain a considerable excess of glycogen, from which its demands for sugar may be met without calling on that of the perfusion fluid. These observations have made it evident that conclusions regarding the rate of sugar consumption in the tissues cannot be drawn from the rate of the disappearance of this substance from the blood, unless determinations are simultaneously made of the amounts of glycogen in the tissues before and after the perfusion.[32] The property of the muscles to take up sugar from the blood which Meltzer and Kleiner have recently investigated, further illustrates the difficulties of work of this nature.[33]

Much more satisfactory results can be procured by taking as our index of dextrose consumption, not the rate at which dextrose disappears from the blood, but the behavior of the respiratory exchange after the injection of dextrose. In normal animals such injections, as we have already seen, cause an increase in the carbon dioxid excretion and a rise in the respiratory quotient. In diabetic (depancreatized) animals, on the other hand, it is asserted by Verzár that the sugar injections do not have this effect, provided a period of at least five days has been permitted to elapse since the pancreas was removed.[34] It is pertinent to note that if five days elapse after the removal of the pancreas before there is definite evidence of deficient sugar combustion, this cannot be the immediate cause of the diabetic condition.

The fact that on the one hand the normal animal, as judged from the respiratory exchange, burns more sugar when an excess is present in the blood, while the diabetic animal fails to do so, but excretes the excess instead, does not, however, carry us very far in deciding whether the failure to burn the sugar is dependent on a fault resident in the consuming tissues themselves, or on one affecting some organ whose function it is to prepare the sugar molecule for utilization.

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[27] Cruickshank: Jour. Physiol., 1913, xlvii, 1.

[28] Verzár: Biochem. Ztschr., 1911, xxxiv, 63.

[29] Knowlton and Starling: Jour. Physiol., 1912, xlv, 146. Maclean and Smedley: ibid., 1913, xlv, 470.

[30] Macleod, J. J. R., and Pearce, R. G.: Zentralbl. f. Physiol., 1913, xxvi, 1311. Am. Jour. Physiol., 1913, xxxii, 184.

[31] Patterson and Starling: Jour. Physiol., 1913, xlvii, 135. Cruickshank and Patterson: ibid., 1913, xlvii, 381.

[32] Camis: Arch. ital. de biol., 1913, lx, 113.

[33] Meltzer and Kleiner: Proc. Am. Physiol. Soc., December, 1913.

[34] Verzár and Fejér: Biochem. Ztschr., 1913, liii, 140.

All we really know at present is that the depancreatized animal cannot burn sugar, but, encouraged by the fruitful outcome of researches on the ductless glands, we have come to assume that this inability is because the removal entails the loss to the organism of some internal secretion or hormone which is necessary for sugar combustion. This is, however, by no means the only way by which the results can be explained, for we can assume that the pancreas owes its influence over sugar metabolism to some local change occurring in the composition of the blood as this circulates through the gland — a change which is dependent on the integrity of the gland and not on any one enzyme or hormone which it produces. It is obvious that the results of removal of the gland could be explained in terms of either view, and indeed, there is but one experiment which would permit us to decide which of them is correct. This consists in seeing whether the symptoms which follow pancreatectomy are removed, and a normal condition reestablished, when means are taken to supply the supposed missing internal secretion to the organism; if they should be, conclusive evidence would be furnished that it is by "internal secretion" and not by "local influence" that the gland functionates.

The experiments have been of two types: in the one, variously prepared extracts of the glands have been employed, and in the other, blood which is presumably rich in the internal secretion. The most recent work with pancreatic extracts has been performed by Knowlton and Starling, by Verzár,[34] and by Murlin and Kramer.[20] Although the first-mentioned workers have thought that their earlier experiments pointed to an improvement in the sugar-consuming powers of the isolated diabetic heart, when pancreatic extracts were mixed with the perfusion fluid, more recent investigation has shown that the complexity of the experimental conditions renders such a conclusion untenable. It has been unreservedly withdrawn by Patterson and Starling. Neither Verzár nor Murlin and Kramer were able to find that injection of pancreatic extracts into a depancreatized animal produced any effect on the respiratory quotient, although Murlin and Kramer did observe that injections of extracts of pancreas and duodenum produce a temporary fall in the dextrose excretion in the urine. More thorough investigation of the cause of this apparent antidiabetic effect, however, revealed the fact that it was due to the alkalinity of the extract. Alkali temporarily decreases and acids increase the sugar excretion in the urine in diabetic animals, possibly by the influence which they have in accelerating or depressing glycogenolytic activity. Apart from the conclusions which they permit us to draw, these experiments are of great importance in cautioning us as to the extreme technical difficulties that are likely to embarrass us in attacking this problem.

Nor have the experiments with blood-transfusions yielded results that are any more satisfactory. In undertaking these experiments it is of course assumed that the internal secretion is present in the blood, and that if this blood be supplied to an animal suffering from diabetes because of the loss of its pancreas, it will restore it to a non-diabetic state. The most important experiments have been performed by Hédon, Forschbach, Carlson and Drennan, Murlin and Kramer,[20] Woodyat,[35] and Verzár and Fejér.[34] It would be useless for me to review the results of each observer. The general conclusions, which may be drawn from their researches as a whole, is that there is no evidence that the blood of a normal animal, even when it is from the pancreatic vein, contains an internal secretion that can restore to a diabetic animal any of its lost power to utilize carbohydrates. When the extent of glycosuria alone is used as the criterion of the state of carbohydrate metabolism, serious errors in judgment are liable to be drawn. The condition of the blood-sugar and the extent and character of the respiratory exchange are the most reliable indexes.

In this article I have endeavored to do no more than pick out a few of the researches that have interested me most during the past two years. I have been compelled, perhaps somewhat arbitrarily, to exclude from my review among other things the extremely interesting and important work which has in this time been done on the nature of the chemical processes which are responsible for the new formation of sugar (glyconeogenesis) in the diabetic animal, and of those concerning the formation of acetone bodies which so regularly make their appearance in the later stages of the disease.

We may hope that the outcome of the studies which Ringer has recently prosecuted in this direction will be the successful control by therapeutic means of the development of the acetone bodies which occurs in the later stages of diabetes, just as the researches which I have attempted to review indicate in what way we may hope to control the disease in its earlier stages.

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[35] Woodyat: Proc. Am. Physiol. Soc., December, 1913.

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# POSSIBILITIES IN THE USE OF THE AUSCULTATORY METHOD OF DETERMINING BLOOD-PRESSURE IN PNEUMONIA

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The advantage to be derived from the following of pneumonia cases with the sphygmomanometer has already been so fully shown that no further comment on this fact is necessary other than to emphasize by repetition its importance. The significance of the Gibson pulse-blood-pressure ratio in its relation to prognosis and treatment has likewise been fully shown.[1] This, in brief, as propounded by its originator, G. A. Gibson of Edinburgh, states that, in pneumonia, so long as the blood-pressure expressed in millimeters of mercury remains well above the pulse-beat per minute, the condition of the circulation can be considered as satisfactory, and the outlook for the patient as correspondingly favorable. Should the pulse per minute curve, however, rise above the systolic blood-pressure curve, the case assumes a most serious aspect, and unless this state of affairs is quickly amenable to our therapeutic endeavors a fatality may be expected.

While the preceding assertions have not borne without exception the extended clinical test accorded them, yet in spirit if not in letter they have been abundantly justified. The types of cases which have shown a lack of conformity to the rule have been those in which the pulse and systolic pressure were, independently of the pneumonia, out of the proper relation. Most prominent among these are the senile and arteriosclerotic high blood-pressure cases in which the systolic pressure is so far above the pulse-rate that their comparison by the Gibson ratio may be most misleading. Thus a ratio which would indicate a splendid state of affairs in a young person with elastic vessels might prove incompatible with life in the case of an elderly arteriosclerotic. Such persons may die with a pressure well above pulse-rate. At the other extreme are found the cases with habitually relaxed circulation, wherein the system must have accommodated itself through necessity to the output of a cardiovascular mechanism of poor efficiency, and can therefore the more tenaciously cling to life in spite of a still further circulatory depression. This group comprises young persons—as instanced by chlorotic young girls—and more elderly persons of an anemic or emaciated habit. These cases are the ones in which life is maintained and recovery accomplished in spite of a continued pulse-rate above the blood-pressure. Between these extremes, cases are occasionally found which deviate from the rule but in which the influencing factor can usually be found to explain the discrepancy, as a nephritis, valvular defect, etc.

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[1] Gibson, G. A.: Some Lessons from the Study of Arterial Pressure, Edinburgh Med. Jour., 1908, n. s., xxiii, 17. Gordon, G. A.: Some Remarks on the Value of Accurate Blood-Pressure Estimations, Edinburgh Med. Jour., 1910, n. s., iv, 31. Hare: Therap. Gaz., 1910, Series 3, xxvi, 387. Goodman and Pitman: Therap. Gaz., July, 1911.

In all of these exceptions, however, as a working substitute for the ratio, Gibson's statement holds that "a pressure appreciably below normal in pneumonia is invariably an evil omen and any considerable fall bodes disaster." The "normal" pressure here must be taken as that normal to each individual when not suffering from pneumonia and not as referring to the usual 120 to 130 mm. The failure of Gibson's rule to hold in all cases of pneumonia must be largely due to the fact that in this instance alone is the systolic blood-pressure taken as the sphygmomanometric index of circulatory efficiency. As in no other condition is this the case why should it be so in pneumonia? Instances of high blood-pressure with poor circulatory efficiency are so common as to need no comment. Indeed, hardly less frequent are cases in which improvement takes place with an actual drop in the systolic blood-pressure, and it is with wonder, as well, that we recall the respectable pressures often maintained to the very last by the dying heart.

To make the Gibson pulse-blood-pressure ratio in pneumonia an even more valuable guide to the state of the circulation than it already is I would urge the attempt to estimate mentally in every case just what the pulse-blood-pressure ratio was prior to the onset of the disease, the age, vessels, heart lesions, kidney changes, etc., being taken into consideration. To this I would further add the noting of the auscultatory phases of the blood-pressure reading. With the auscultatory method of determining blood-pressure[2] now in general use, a noting of the auscultatory phases adds practically nothing in the way of time or trouble to the pulse-blood-pressure estimation.

The auscultatory phases above mentioned, in brief, number four and comprise the so-called auscultatory sequence. This sequence of sounds is heard with the stethoscope placed over the brachial artery below the sphygmomanometer cuff, as the column of mercury is gradually allowed to fall in passing downward from the systolic pressure.

The first sound heard, after obliteration of the pulse, is a clear-cut tap, and indicates the point of systolic pressure. As the column of mercury falls other similar taps are heard. These *in toto* constitute the first phase. A sudden change from taps to a succession of murmurs marks the passage of first into second phase. The third phase is instituted on a reappearance of clear tapping sounds, and, as the column of mercury is allowed to gently sink, gives way to a succession of dull, muffled taps—the fourth phase. At the cessation of these sounds the mercury column continues its fall to the zero mark, unaccompanied by auscultatory phenomena. This absence of sound has been called by some the fifth phase. In view of the recent work by Warfield[3] and also by Weysse and Lutz,[4] the diastolic pressure must be taken as corresponding with the beginning of the fourth phase, and not as with the cessation of all sounds.

The proper allotment of space, in the normal, to each of these phases has been worked out and the whole graphically presented on a percentage basis. A backward look at the manner in which the question of auscultatory sequence reading has been presented leads me to feel that its kernel of truth has been lost in the maze of numerals and percentages that have accompanied its description. What is needed, for the appreciation of the worth of this method, is its reduction to the simplest terms. Who of us on listening to a heart consciously recalls the numerical relations and ratios of the various components of the cardiac cycle? We have, rather, fixed in our consciousness what we look on as a normal sequence of these sounds. This is the fruit of numberless examinations and serves us as a standard for comparison. The impress of a normal auscultatory sequence must be sought in the same way. It will come through our sense of hearing, in repeated examinations, rather than by studying sets of figures or by devoting much time to percentage calculations.

It is important to realize that normally these four phases do exist. Of further importance is it that a predominance of the characteristics of the second and third phase, murmurs and clear taps, bespeak cardiac and arterial integrity and circulatory efficiency, while on the other hand, a prolongation of those of the fourth phase, dull taps at the expense of the second and third phases indicates a reversal of these favorable conditions.

As a more comprehensive statement of what can be learned from auscultatory sequence reading I quote from the second paper by Dr. Goodman and myself[5] on this subject:

> Aside from the value of the persistence of the fourth phase in aortic insufficiency, little of diagnostic value has developed in regard to the length of any individual phase. Advantage has been derived, however, from studying the changes in the sequence readings, especially in decompensating cardiac lesions, as the patient improves or not. Or to put it another way, sequence readings have a functional rather than an organic significance.

To this I would add that in pneumonia, especially, is found a fruitful field for its usefulness.

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[2] Korotkow: (Quoted by Ettinger.) Ettinger: Wien. klin. Wchnschr., 1907, p. 992. Gittings, J. C.: Auscultatory Blood-Pressure [illegible] it. Med., Aug. 15, 1910, 196. Goodman [illegible] i. Med. Bull., 1910, xxiii, 469. Fischer: [illegible] 1908, p. 1141.

[3] Warfield, L. M.: *Studies in Auscultatory Blood-Pressure Phenomena*, I. The Experimental Determination of Diastolic Pressure, Arch. Int. Med., Sept. 15, 1912, p. 258; Interstate Med. Jour., 1912, xix, 856; THE JOURNAL A. M. A., Oct. 4, 1913, p. 1254.

[4] Weysse and Lutz: Am. Jour. Physiol., Dec. 1, 1913, xxxii, No. 8.

[5] Goodman and Howell: Am. Jour. Med. Sc., 1911, p. 146.

As regards the characteristics of the auscultatory sequences in pneumonia, I would preface my remarks by saying that I do not recommend an attempt at recording the phases in their actual millimetric length, as this would in the majority of cases be impossible, but rather their individual scrutiny as to whether present or absent, long or short, or good or bad (that is, characteristic or not), in fact, with about the same thoughts in mind as one would have in listening to the heart itself.

Indeed, the heart sounds and those heard over the artery are comparable in a general way. Other things being equal, strong, clear-cut sounds over the artery are as indicative of a state of circulatory well being as are sounds of similar nature heard at the apex. Likewise indefinite, muffled or irregular sounds are as worthy of the opposite interpretation as are like sounds over the heart.

While the second and third phases when generously present are taken as standing for circulatory strength, this interpretation must be modified by the way in which these phases measure up to the standard in the quality of their individual sounds. Thus a very clear and much-prolonged third phase is found with arteriosclerosis, cardiac hypertrophy and accentuated aortic second sound. It can be seen, therefore, that in the third phase information can be gleaned regarding both the heart and the degree of peripheral resistance. For this reason it, of all the phases, is the most enlightening one in pneumonia.

Again I emphasize that more is to be gained from watching the changes in a succession of sequences than from isolated observations, for, indeed, one patient may be quite comfortable with a sequence which in another promises the worst.

The second phase is the one most quickly lost in pneumonia and therefore its presence is of good augury. As already suggested, it is principally in the general character and duration of the clear tap of the third phase that information as to the degree of circulatory efficiency must be sought.

In pneumonia I take all clear tapping sounds as of good import whether heard in that part of the sequence usually assigned to the third phase or not. To all weak or muffled sounds, in the same way, the opposite significance is given. When the clear tap is lost and the sequence appears as a succession of dull muffled sounds from systole downward, a high grade of peripheral relaxation and secondary cardiac exhaustion can be inferred. When to this, arhythmia is added, the worst picture is drawn.

The preceding statements would not in themselves be so interesting were it not for the fact that such changes in the sequences can occur without a corresponding change in the *Gibson ratio*. It would seem, therefrom, that a laboring heart and its relaxed vessels can more easily sustain a stationary Gibson ratio than a stationary auscultatory sequence.

It is in the advance information thus afforded that the auscultatory sequence can claim its unique place in the following of a pneumonia case. Furthermore, the same kind of information is at hand in those cases which do not lend themselves to Gibson's dictum. As it is the little things that so often turn the tide for or against us in pneumonia, I feel that here we have one of the little things that we can't afford to miss.

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# VARIATIONS IN THE STRENGTH OF THE WASSERMANN REACTION IN UNTREATED SYPHILITIC INFECTIONS *

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The complement-fixation test for syphilis has proved to be of the greatest value in the diagnosis of the disease, and as a control of the efficiency of treatment. I believe that this statement will be accepted by all students of the subject who have had a wide experience in the application of the test, despite the adverse reports and criticisms of some syphilographers who are loath to admit that the opinions of centuries concerning certain clinical conceptions of the disease, and the ease with which it may be cured, have received a death-blow, as shown by the positive results obtained with this test in innumerable cases thought to have been cured by the older methods of treatment.

Certainly, my own experience, covering over 15,000 Wassermann tests made during my service at the Laboratory of the Army Medical School, Washington, D. C., and at this laboratory, has convinced me that in this reaction we possess the most valuable test that we have of the presence of syphilitic infection, a positive reaction being the most delicate and persistent of all of the symptoms of syphilis, and that, in the light of our present knowledge, to consider a patient as cured of the disease so long as a positive Wassermann reaction is present, is not only irrational, but most unjust to the patient, in that it exposes him to almost certain relapse in the future, and renders the infection of innocent individuals more than probable.

Valuable as this test is, however, in the diagnosis and as a guide to the treatment of syphilis, there are many phenomena connected with it that are, as yet, unexplained, and it is one of these that forms the subject of this contribution, that is, the extreme variation in the strength of the reaction sometimes observed in untreated patients suffering from syphilitic infection.

During the routine examination of serums for the Wassermann reaction at the laboratories mentioned, I have frequently observed cases in which the reaction varied from a strongly suspicious one to a plus-minus or negative one within intervals of one or two weeks, while in a few cases a positive reaction has become negative within the same period of time, the patients in the meanwhile having received no treatment. In all of these instances subsequent tests of the blood-serum resulted in a positive reaction, so that it was evident that these variations in the result must have depended on the reduction or absence of the body or bodies in the patient's serum which produce complement fixation in the presence of an efficient antigen.

The fact that the blood-serum of an undoubted syphilitic patient may, during certain intervals, give a negative reaction, in the absence of specific treatment, and when previous and subsequent tests are positive, is of considerable importance in the interpretation of a negative result in any case suspected of the disease, and of significance in the study of the exact nature of this reaction. In my experience these anomalous results have not been very numerous, but their occurrence, together with the criticisms of some writers who have had a similar experience, and who therefore appear to consider the test untrustworthy, renders an experimental study of the subject of value, and in this paper I shall give in detail the results obtained from the daily titration of the blood-serum of ten untreated cases of syphilis, the titrations covering seven days in each instance.

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While, *a priori,* there would appear to be no reason why the strength of the complement-fixation reaction in the blood-serum of untreated syphilitics should not vary markedly from day to day, this phase of the subject appears to have received little attention, and we have grown to consider the strength of the reaction as an invariable quantity, the discordant results that have sometimes been obtained with the reaction either being imputed to the serologist or considered as proof of the unreliability of the test. If this paper does nothing more, it will demonstrate that marked daily variations do occur in the strength of the reaction and that these must be most carefully considered in the interpretation of negative or anomalous results.

### MATERIAL AND TECHNIC

Ten patients suffering from undoubted syphilitic infection were selected for the experiments. Of these, two were in the primary stage of the disease, four in the secondary stage, and four in the latent stage of syphilis. The only patients who had received any treatment were those in the latent stage and it had been over a year since any treatment had been administered to these cases. The two patients in the primary stage showed typical chancres, and have since developed secondary lesions; the four in the secondary stage all showed typical eruptions or mucous lesions; while the four with latent infections were free from symptoms at the time of examination, but gave a typical history of infection and had presented typical symptoms in the past. All of the patients with latent infections had been treated with salvarsan about one year before these tests were made.

Most of the men were prisoners in the U. S. Military Prison, at Fort Leavenworth, and thus all chance of the strength of the reaction being influenced by the use of alcohol or by other irregularities was obviated, the men being under a rigid discipline and on a plain, wholesome diet. The serum was collected every morning in sterilized tubes and promptly tested.

As regards the technic of the test, it may be stated that it was identical with that used by myself during the past four years in the routine Wassermann work of the laboratories mentioned, being a modification of both the original Wassermann and the Noguchi technic. A human hemolytic system was employed instead of the sheep system of Wassermann, while an alcoholic syphilitic antigen was employed and the serums were always inactivated before being tested.

Each patient's blood-serum was titrated every day for one week, the quantities of serum employed being 0.02 c.c.; 0.04 c.c.; 0.06 c.c.; 0.08 c.c. and 0.1 c.c. The quantity of blood-serum used in our routine Wassermann tests is 0.08 c.c., so that this quantity may be taken as the diagnostic amount given in the tables. A control of 0.1 c.c. of the serum titrated was always used.

In the tables the sign + + indicates absolute inhibition of hemolysis, or a positive reaction; the sign + anything between absolute inhibition and 50 per cent. of inhibition of hemolysis, or a doubtful reaction; the sign + — anything between 50 per cent. of inhibition and total hemolysis, or practically a negative reaction; and the sign — total hemolysis or a negative result.

### RESULTS IN THE PRIMARY STAGE OF SYPHILIS

Owing to lack of material, there were only two cases tested in the primary stage of syphilis. The men both presented typical chancres and when first tested gave a double-plus, or positive Wassermann reaction.

CASE 1.—The results obtained in the titration of the blood-serum in Case 1 are shown in Table 1. Several days before the titrations were begun the blood-serum in this case gave a double-plus reaction. The variations in the strength of the serum, as shown by the table, are most marked, of course, with the smaller amounts used but it will be noted that on three days of the test week, the amount of serum usually used as the diagnostic amount (0 08 c.c.) gave a plus, or doubtful reaction, and that this was also true of 0.1 c.c. of the serum, an amount larger than is usually employed in our routine tests. It is thus evident that if spirochetes could not have been demonstrated in the lesion present the Wassermann test in this case would have been doubtful during three of seven days. With the smaller amounts of serum the reaction varied from a plus-minus to a double-plus reaction, and on the seventh titration the smallest amount of serum used gave a double-plus reaction.

TABLE 1.—RESULTS OF TITRATION OF BLOOD-SERUM IN CASE 1 (PRIMARY)

| Date of Test | Amount of Blood-Serum, c.c. | | | | | Control c.c. |
|---|---|---|---|---|---|---|
| | 0.02 | 0.04 | 0.06 | 0.08 | 0.1 | 0.1 |
| Nov. 19 ..... | +— | + | + | + | + | — |
| Nov. 20 ..... | +— | +— | + | ++ | ++ | — |
| Nov. 21 ..... | +— | + | ++ | ++ | ++ | — |
| Nov. 22 ..... | +— | +— | + | + | + | — |
| Nov. 23 ..... | + | ++ | ++ | ++ | ++ | — |
| Nov. 24 ..... | +— | + | + | + | + | — |
| Nov. 25 ..... | ++ | ++ | ++ | ++ | ++ | — |

CASE 2.—The results obtained in the titration of the blood-serum of Patient 2 are given in Table 2. Several days before the titrations were begun the blood-serum of this patient gave a double-plus or positive reaction. It will be noted that while for five of the seven days during which the serum was titrated, he gave a double-plus reaction, on two days he gave a plus or doubtful reaction, and that this reaction was obtained with both 0.08 c.c. and 0.1 c.c. of serum. With smaller quantities of serum he varied more than Case 1, on two of the seven days being negative with 0.02 c.c. of serum, and at no time did this amount of serum give a double-plus reaction.

TABLE 2.—RESULTS OF TITRATION OF BLOOD-SERUM IN CASE 2 (PRIMARY)

| Date of Test | Amount of Blood-Serum, c.c. | | | | | Control c.c. |
|---|---|---|---|---|---|---|
| | 0.02 | 0.04 | 0.06 | 0.08 | 0.1 | 0.1 |
| Nov. 19 ..... | + | ++ | ++ | ++ | ++ | — |
| Nov. 20 ..... | +— | ++ | ++ | ++ | ++ | — |
| Nov. 21 ..... | — | +— | + | + | + | — |
| Nov. 22 ..... | — | +— | +— | + | + | — |
| Nov. 23 ..... | + | ++ | ++ | ++ | ++ | — |
| Nov. 24 ..... | + | ++ | ++ | ++ | ++ | — |
| Nov. 25 ..... | + | ++ | ++ | ++ | ++ | — |

It may be stated, then, that both of these cases of primary syphilis showed such variations in the strength of the Wassermann reaction as to have been reported doubtful had spirochetes not been demonstrable in the lesion present, even when an amount of serum in excess of that usually employed in the test was used.

### RESULTS IN THE SECONDARY STAGE OF SYPHILIS

The blood-serum of four cases of secondary syphilis, presenting symptoms typical in character, was tested in the same manner and with the following results.

Case 3.—This patient presented a few typical mucous patches in the mouth and throat and gave a history of having had an eruption covering the chest and back. Table 3 gives the results of the titration of his blood-serum. It will be noted that in this case even the smallest amount of serum employed gave a double-plus reaction each day it was tested, and that at no time during the week was there a diminution in the strength of the reaction. The case is interesting as showing how strong the reaction is in some instances and how little it varies even with very small amounts of serum.

TABLE 3.—RESULTS OF TITRATION OF BLOOD-SERUM IN CASE 3 (SECONDARY)

| Date of Test | Amount of Blood-Serum, c.c. | | | | | Control c.c. |
|---|---|---|---|---|---|---|
| | 0.02 | 0.04 | 0.06 | 0.08 | 0.1 | 0.1 |
| Nov. 26 ..... | ++ | ++ | ++ | ++ | ++ | — |
| Nov. 27 ..... | ++ | ++ | ++ | ++ | ++ | — |
| Nov. 28 ..... | ++ | ++ | ++ | ++ | ++ | — |
| Nov. 29 ..... | ++ | ++ | ++ | ++ | ++ | — |
| Nov. 30 ..... | ++ | ++ | ++ | ++ | ++ | — |
| Dec. 1 ...... | ++ | ++ | ++ | ++ | ++ | — |
| Dec. 2 ...... | ++ | ++ | ++ | ++ | ++ | — |

Case 4.—This patient had mucous patches and a slight secondary eruption at the time of examination. The results of the titration of his blood-serum are given in Table 4. In this case the only variation in the binding power of the serum was noted in the smallest quantity used, on two days 0.02 c.c. of the serum giving a plus reaction. The diagnostic amount of serum (0.08 c.c.), however, always gave a double-plus reaction, so that in this and the preceding case it may be stated that no variation of diagnostic importance occurred during the titrations.

TABLE 4.—RESULTS OF TITRATION OF BLOOD-SERUM IN CASE 4 (SECONDARY)

| Date of Test | Amount of Blood-Serum, c.c. | | | | | Control c.c. |
|---|---|---|---|---|---|---|
| | 0.02 | 0.04 | 0.06 | 0.08 | 0.1 | 0.1 |
| Jan. 3 ...... | ++ | ++ | ++ | ++ | ++ | — |
| Jan. 4 ...... | ++ | ++ | ++ | ++ | ++ | — |
| Jan. 5 ...... | ++ | ++ | ++ | ++ | ++ | — |
| Jan. 6 ...... | ++ | ++ | ++ | ++ | ++ | — |
| Jan. 7 ...... | + | ++ | ++ | ++ | ++ | — |
| Jan. 8 ...... | + | ++ | ++ | ++ | ++ | — |
| Jan. 9 ...... | ++ | ++ | ++ | ++ | ++ | — |

Case 5.—This patient presented mucous patches and a well-marked secondary eruption at the time of examination, and had given a double-plus Wassermann reaction a few days before the titrations were begun. Table 5 illustrates the results obtained.

TABLE 5.—RESULTS OF TITRATION OF BLOOD-SERUM IN CASE 5 (SECONDARY)

| Date of Test | Amount of Blood-Serum, c.c. | | | | | Control c.c. |
|---|---|---|---|---|---|---|
| | 0.02 | 0.04 | 0.06 | 0.08 | 0.1 | 0.1 |
| Dec. 24 ..... | +— | +— | + | ++ | ++ | — |
| Dec. 25 ..... | — | — | — | — | +— | — |
| Dec. 26 ..... | — | +— | +— | + | + | — |
| Dec. 27 ..... | — | — | +— | +— | + | — |
| Dec. 28 ..... | +— | + | + | ++ | ++ | — |
| Dec. 29 ..... | — | +— | +— | + | ++ | — |
| Dec. 30 ..... | — | +— | + | + | ++ | — |

The blood-serum of this patient presented marked variations in the strength of the Wassermann reaction. On one day he was absolutely negative with the usual amount of serum used in the test and only gave a plus-minus reaction with 0.1 c.c. of the serum; on another day he gave a plus-minus reaction with the diagnostic amount of serum and a plus reaction with the larger amount, while on three days he gave a plus or doubtful reaction with the diagnostic amount of serum. The variations with the smaller amounts of serum are still more marked, negative and plus-minus reactions being very numerous, while at no time did less than 0.08 c.c. of his serum give a double plus, or positive result. With the diagnostic amount of serum, namely, 0.08 c.c., he gave a positive reaction only on two of the seven days his serum was tested, and on two days he was practically negative, doubtful results being obtained on the remaining days.

This case is of great interest owing to the marked variations that occurred in the strength of the reaction in the presence of very marked secondary symptoms.

Case 6.—This patient presented a typical secondary eruption on the chest and back at the time of examination, and gave a double-plus Wassermann reaction before the titrations of his serum were begun. Table 6 gives the result of the titrations in this case.

TABLE 6.—RESULTS OF TITRATION OF BLOOD-SERUM IN CASE 6 (SECONDARY)

| *Date of* Test | Amount of Blood-Serum, c.c. | | | | | Control c.c. |
|---|---|---|---|---|---|---|
| | *0.02* | *0.04* | *0.06* | *0.08* | *0.1* | 0.1 |
| Dec. 5 ..... | +— | +— | + | + | ++ | — |
| Dec. 6 ..... | ++ | ++ | ++ | ++ | ++ | — |
| Dec. 7 ..... | ++ | ++ | ++ | ++ | ++ | — |
| Dec. 8 ..... | ++ | ++ | ++ | ++ | ++ | — |
| Dec. 9 ..... | ++ | ++ | ++ | ++ | ++ | — |
| Dec. 10 ..... | +— | + | + | + | + | — |

Comparatively little variation occurred in the strength of the reaction in this case, but on two days the diagnostic amount of serum gave only a plus or doubtful reaction, while on one day even the larger amount of serum gave a similar reaction.

From these results in secondary, untreated, cases of syphilis, it is evident that the strength of the Wassermann reaction may vary all the way from a double-plus or positive reaction to a negative reaction, in the same patient, within an interval of a few days, and in the presence of marked symptoms of syphilitic infection. The great practical importance of this fact is apparent and must be borne in mind in the interpretation of a negative or doubtful result with this test in suspected cases of the disease.

### RESULTS IN THE LATENT STAGE OF SYPHILIS

Four patients in the latent stage of syphilis were tested. All of them gave a history of definite symptoms of the disease in the past, but in none of them had active symptoms been present for a period of at least one year. All of the men had received one or two injections of salvarsan over one year ago and all gave a double-plus Wassermann reaction shortly before the titrations of the blood-serum were commenced. None of the men presented symptoms of syphilitic infection beyond enlarged inguinal and epitrochlear glands at the time of examination.

Case 7.—Table 7 gives the result of the titration of the blood-serum in this case. It will be noted that, with the diagnostic amount of serum, this patient gave a doubtful, or plus, reaction on three of the seven days on which it was tested, and that the same type of reaction was also given with 0.1 c.c. of the serum. On two days the serum gave a double-plus reaction even with the smallest quantity used, while the same amount on five days gave a negative or plus-minus reaction.

TABLE 7.—RESULTS OF TITRATION OF BLOOD-SERUM IN CASE 7 (LATENT)

| Date of Test | Amount of Blood-Serum, c.c. | | | | | Control c.c. |
|---|---|---|---|---|---|---|
| | 0.02 | 0.04 | 0.06 | 0.08 | 0.1 | 0.1 |
| Dec. 19 ..... | +— | + | + | ++ | ++ | — |
| Dec. 20 ..... | — | +— | + | + | + | — |
| Dec. 21 ..... | — | + | ++ | ++ | ++ | — |
| Dec. 22 ..... | — | +— | + | + | + | — |
| Dec. 23 ..... | ++ | ++ | ++ | ++ | ++ | — |
| Dec. 24 ..... | ++ | ++ | ++ | ++ | ++ | — |
| Dec. 25 ..... | +— | + | + | + | + | — |

On three days the serum from this patient gave a reaction which could not be considered positive, so that it may be stated that the Wassermann test in this case would have been of little diagnostic service on three of seven consecutive days.

CASE 8.—Although no symptoms had been noted in Patient 8 for over one year, his blood-serum was very uniform in strength, and gave a double-plus or positive result on every day it was tested. Table 8 gives the result of the daily titration of the blood-serum in this case.

TABLE 8.—RESULTS OF TITRATION OF BLOOD-SERUM IN CASE 8 (LATENT)

| Date of Test | Amount of Blood-Serum, c.c. | | | | | Control c.c. |
|---|---|---|---|---|---|---|
| | 0.02 | 0.04 | 0.06 | 0.08 | 0.1 | 0.1 |
| Jan. 12 ..... | + | ++ | ++ | ++ | ++ | — |
| Jan. 13 ..... | + | ++ | ++ | ++ | ++ | — |
| Jan. 14 ..... | + | ++ | ++ | ++ | ++ | — |
| Jan. 15 ..... | +— | + | ++ | ++ | ++ | — |
| Jan. 16 ..... | +— | + | ++ | ++ | ++ | — |
| Jan. 17 ..... | +— | + | ++ | ++ | ++ | — |
| Jan. 18 ..... | +— | + | + | + | ++ | — |

It will be noted that on only one day did the strength of the Wassermann reaction in this case vary enough to cause a doubtful or plus reaction with the diagnostic amount of serum, and that even with the smaller amounts of serum the results were generally positive, with the exception of 0.02 c.c., which never gave a double-plus reaction. The case is of interest as showing how uniform the reaction may be in a latent case of syphilis.

CASE 9.—The blood-serum in this case varied markedly in complement-fixing strength, as will be seen by Table 9. A consideration of this table shows that, if we take the diagnostic amount of serum, or 0.08 c.c., on only two of the seven days was a positive, or double-plus, reaction obtained; that on one day the serum was negative; on one day, plus-minus; and on three days a plus reaction was obtained. With an amount of serum larger than the diagnostic amount usually employed, that is, 0.1 c.c., on two days a plus-minus reaction was obtained and on one day a plus reaction.

TABLE 9.—RESULTS OF TITRATION OF BLOOD-SERUM IN CASE 9 (LATENT)

| Date of Test | Amount of Blood-Serum, c.c. | | | | | Control c.c. |
|---|---|---|---|---|---|---|
| | 0.02 | 0.04 | 0.06 | 0.08 | 0.1 | 0.1 |
| Jan. 15 ..... | — | +— | ++ | ++ | ++ | — |
| Jan. 16 ..... | — | +— | + | + | + | — |
| Jan. 17 ..... | +— | + | + | ++ | ++ | — |
| Jan. 18 ..... | — | — | +— | + | ++ | — |
| Jan. 19 ..... | — | — | — | — | +— | — |
| Jan. 20 ..... | — | — | +— | + | ++ | — |
| Jan. 21 ..... | — | — | — | +— | +— | — |

With the smaller amounts of serum the variations in the strength of the reaction were still more striking, as will be noted by consulting the table.

CASE 10.—In so far as a positive result is concerned, this patient's serum varied even more markedly than did that of the preceding case. The results of the titration of this serum are shown in Table 10. From a consideration of this table it will be noted that with 0.08 c.c. of serum, the amount usually employed in our routine tests, a double-plus, or positive, reaction was obtained on only one day of the seven during which the serum was titrated. This patient's blood had been tested the day before the titrations commenced and gave a double-plus reaction, and since then has repeatedly given such a reaction, but it is evident that had he been tested on six of the seven days covered by titration of his serum, a doubtful or negative report would have been returned. With 0.1 c.c. of serum the reaction was positive on three of the seven days he was under examination. With the smaller amounts of serum the variation in the strength of the reaction is still more apparent.

TABLE 10.—RESULTS OF TITRATION OF BLOOD-SERUM IN CASE 4 (LATENT)

| Date of Test | Amount of Blood-Serum, c.c | | | | | Control c.c. |
|---|---|---|---|---|---|---|
| | 0.02 | 0.04 | 0.06 | 0.08 | 0.1 | 0.1 |
| Jan. 15 ..... | — | — | — | +— | + | — |
| Jan. 16 ..... | — | +— | + | + | ++ | — |
| Jan. 17 ..... | — | +— | + | + | + | — |
| Jan. 18 ..... | — | — | +— | + | + | — |
| Jan. 19 ..... | — | +— | +— | +— | +— | — |
| Jan. 20 ..... | — | +— | +— | + | ++ | — |
| Jan. 21 ..... | +— | ++ | ++ | ++ | ++ | — |

## DISCUSSION OF THE RESULTS

Briefly summarized, the results obtained in this investigation may be stated as follows: In one case of primary syphilis, a plus or doubtful complement-fixation reaction was obtained on three of seven days, the reaction on four days being double-plus, or positive; in another case, a plus or doubtful reaction was obtained on two of seven days. In one case of secondary syphilis, a negative reaction was obtained on one day, a plus-minus on one day, a plus or doubtful reaction on three days and a positive or double-plus reaction on two days; in another secondary case a plus or doubtful reaction was obtained on two of seven days. Of the latent cases, one gave a plus-minus reaction on two days and a plus reaction on four days of the week, a positive reaction being obtained only on one day; another gave a negative reaction on one day, a plus-minus on another, and a plus reaction on three days. The third latent case gave a plus or doubtful reaction on three of seven days, while the fourth case gave a double plus reaction on all but one day of the seven.

The most important practical points brought out by these observations on the daily titration of the blood-serum of untreated syphilitics are that great variations may occur in the [illegible] power of the serum in patients [illegible] kind of treatment; that a single negative or doubtful Wassermann reaction is of no value in excluding syphilis; and that the occurrence of these natural variations must be carefully considered in the diagnosis and the control of treatment of the disease.

There can be no question regarding the technic employed in the titration of these serums as it was identical with that used in our routine Wassermann work, a technic that has been thoroughly controlled and checked by thousands of reexaminations of patients under treatment during the past four and a half years in which I have employed it. Any interference with the reaction which might have been brought about by excesses of any kind is thought to be impossible, as the patients, with two exceptions, were military prisoners, under strict discipline and on an ordinary diet. The influence of alcohol in rendering a positive Wassermann test negative, first called attention to by Nichols and myself,[1] was one of the reasons that prisoners were selected for these tests, and I believe that this disturbing factor was entirely eliminated.

It would appear, then, that marked variations in the strength of the Wassermann reaction may occur, from day to day, in the blood-serum of untreated syphilitic patients, and the question arises: To what are these variations due? In order to answer this question it would be necessary to know the exact cause of complement-fixation in syphilis, a problem still unsolved, although many interesting, attractive and plausible theories have been brought forward by numerous investigators to explain this phenomenon.

That complement-fixation in syphilis is not always a true antigen-antibody reaction is proved by the fact that antigens prepared from normal tissues are efficient, and when such an antigen is used it has been shown that complement-fixation is due to the reaction between the lipoids present in the antigen and lipotropic substances present in the patient's serum. That a true antigen-antibody reaction does occur, however, in certain instances, is proved by the positive results obtained with antigens made from pure cultures of *Spirochaeta pallida,* as shown by Noguchi,[2] Nichols and myself,[3] and Kolmer, Williams and Laubaugh.[4] When an antigen prepared from a fetal syphilitic liver, rich in spirochetes, is employed, I am of the opinion that the complement-fixation reaction obtained is often of a dual nature, there being a specific reaction between the substances extracted from the spirochetes and antibodies in the syphilitic serum, and a non-specific reaction between lipoids present in the extract and lipotropic substances in the serum.

I believe that it may be accepted as proved that there exist in the blood-serum of syphilitics specific antibodies and lipotropic substances that are capable of fixing complement when brought into contact with an efficient antigen. It has also been demonstrated that these bodies depend for their origin on the presence in the body of the spirochetes, for when the latter disappear from the lesions in experimental animals, as the result of treatment, the complement-fixation reaction also disappears. Whether these substances are produced by the reaction of the tissues to endotoxins liberated by the breaking up of the dead spirochetes, to toxins produced by the living spirochetes, or to the presence in the blood of the toxins themselves, are all mooted questions, but it is evident that there must be a certain amount of them in the blood-serum before a positive Wassermann reaction can be obtained. This amount would be expected to vary greatly with the amount of infection; that is, with the number of spirochetes, and from a practical point of view, so far as the correct interpretation of the reaction is concerned, it is immaterial how these substances are produced. The fact must be recognized that in untreated cases of syphilis the Wassermann reaction may vary all the way from a positive to a negative within a short period of time, and with the usual amount of serum employed in the test.

The observations detailed in this contribution make still more evident the absolute worthlessness of a single negative reaction in eliminating syphilis in a suspected person. In several of the cases under discussion the blood-serum, if tested only on certain days, would have given a negative, or practically negative, result, although serum from the same persons had previously given a positive result and again became positive within a day or two. If this be true of untreated cases, some of them showing severe lesions of the disease, it will certainly be found true of a greater number of latent and treated infections, the very class of cases in which a negative Wassermann test is so often considered decisive as to the absence of the disease. The present propaganda for a eugenic law, in which a single, or even two, negative Wassermann reactions are to be relied on to exclude syphilis, does not take into consideration the very slight value of a negative result, and while such a law would be a step in the right direction, a dependence on such a standard alone will inevitably lead to a false sense of security and to the infection of innocent persons.

In conclusion, it may be stated that the daily titration of the complement-fixing power of untreated syphilitics indicates the importance of repeated examinations, when a negative result is obtained, before the patient is considered free from infection. The results also explain some of the anomalous reactions that have been recorded in the literature, and emphasize the need of great caution in the interpretation of negative or doubtful Wassermann reactions.

I desire to express my thanks to Major Kent Nelson, Medical Corps, U. S. Army, and to Capt. Thomas D. Woodson, Medical Corps, U. S. Army, for the opportunity of making the tests recorded in this paper.

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[1] 1. Craig, Charles F., and Nichols, H. J.: The Effect of the Ingestion of Alcohol on the Result of the Complement-Fixation Test in Syphilis, THE JOURNAL A. M. A., Aug. 5, 1911, p. 474.

[2] 2. Noguchi, H.: Experimental Research in Syphilis with Especial Reference to Spirochaeta Pallida (Treponema Pallidum), THE JOURNAL A. M. A., April 20, 1912, p. 1163.

[3] 3. Craig, Charles F., and Nichols, H. J.: A Study of Complement-Fixation in Syphilis with Spirochaeta Culture Antigens, Jour. Exper. Med., 1912, xvi, 336.

[4] 4. Kolmer, J. A., Williams, W. W., and Laubaugh, E. E.: A Study of Complement-Fixation in Syphilis with Treponema Antigens, Jour. Med. Research, 1913, n. s., xxiii, 345.

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# THE LUETIN CUTANEOUS REACTION FOR SYPHILIS *

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Those who have reported results with the luetin cutaneous reaction for syphilis are practically agreed in the conclusion that the test is valueless in primary and secondary (untreated) syphilis and is of value only in the later stages. Over 1,500 tests have been reported in cases of late syphilis and 2,000 in control cases by over twenty-five observers. The percentages of positive reactions reported by different authors vary about as follows:

Tertiary and latent, from 65 to 100 per cent.
Congenital, from 10 to 96 per cent.
Cerebrospinal "parasyphilis," from 30 to 80 per cent.

Variations such as these between the reports of a number of observers are not surprising except in the wide differences in congenital syphilis. For this form, Kaliski reports one positive test in ten cases, while Brown reports thirty positive in thirty-four cases, and Noguchi reports twenty-three positive in twenty-four. The total number of tests in congenital syphilis is still very small, and more reports are evidently needed.

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* From the West Medical Service, Massachusetts General Hospital, Dr. R. C. Cabot, Chief of Service.

It is generally agreed that the luetin test, when positive, is highly specific for syphilis. Out of 2,000 control cases, only fourteen are reported as giving positive reactions (twelve of these by Kaliski). These cases were: tuberculosis (four cases); nephritis, endocarditis, cirrhosis, gout, myasthenia gravis, multiple sclerosis, scrofuloderma, and psoriasis. It seems impossible to prove whether some of these patients may not have had latent syphilis. Two patients were seen in the series to be reported here, giving positive reactions, in which syphilis could not be proved. Both were clinically diagnosed as joint tuberculosis, but left the hospital before the result of a therapeutic test for syphilis could be observed.

### METHOD OF INJECTION OF LUETIN[1]

The luetin, which is an emulsion of a killed culture of *Spirochaeta pallida,* is mixed with equal parts of normal salt solution, and 0.07 c.c. of this mixture is injected with a tuberculin syringe, as superficially as possible into the skin, so as to form a wheal about 5mm. in diameter. In a negative reaction, the lesion may become slightly reddened but never becomes larger than the original wheal and disappears in three or four days. In a positive reaction, a raised papule appears, usually within from twenty-four to forty-eight hours, with rather diffuse induration and surrounding redness. The whole increases in size in from four to six days, reaching a total diameter of not less than 8 mm. and usually from 10 to 20 mm. It then fades during from three to six days more, some reactions being still evident after twenty or thirty days. The papule frequently goes on to pustule formation, but rarely requires opening, and there is very little pain and tenderness in proportion to the size of the lesion. Constitutional reactions are rare and very slight when they do occur. None were seen in the cases in this series.

### REPORT OF TESTS

Through the courtesy of Dr. Noguchi, in supplying us with luetin, we have been able to perform 150 tests in 120 cases (ninety cases on the medical wards and also thirty cases on the orthopedic ward, done by Dr. J. F. O'Farrell, who very kindly furnished the records for this report). There were thirty-six cases of syphilis and eighty-four controls. All of the control cases gave negative reactions with the exception of the two cases of joint disease noted before. The results in the cases of syphilis can best be shown by the accompanying table.

LUETIN AND WASSERMANN TESTS IN THIRTY-SIX CASES OF SYPHILIS

| | No. of Cases | Luetin Test, Positive | Wassermann, Positive | Luetin Pos. with Negative Wass. | Luetin Positive, Without Treatment | Luetin Neg. before Treatment and Pos. after Treatment |
|---|---|---|---|---|---|---|
| Tertiary and latent .... | 22 | 14=64% | 18*=80% | 3 | 8† | 2 |
| Cerebrospinal parasyphilis ..... | 12 | 5=42% | 9 =75% | 1‡ | 1 | 2 |
| Congenital.. | 2 | 0 | 1 | .. | .. | .. |

* The figures in this column are high because they include some cases in which the Wassermann reaction was negative in the blood and only weakly or moderately positive in the spinal fluid.

† It is well understood that the luetin reaction is more often positive in treated than in untreated cases, but the low number here shown of cases positive without treatment is partly due to the fact that many of the patients entered the hospital with the diagnosis already made, and treatment was begun at once before the luetin reaction could be observed.

‡ Blood Wassermann negative four times. The Wassermann on the spinal fluid was weakly positive.

The relative values of the luetin and Wassermann tests in this small series of cases is evident from the table. The Wassermann reaction is positive in a higher percentage of cases of late syphilis than is the luetin. The value of the luetin reaction appears in the small number of cases of syphilis in which it is positive, while the Wassermann is negative (four out of thirty-six cases). In these cases it is of definite value, and it is for this reason that the test is now used on the medical service at this hospital.

### REPEATED INOCULATIONS

In thirty cases giving negative or doubtful results on first inoculation, the test was repeated after an interval of from ten to sixty days, in an effort to determine whether or not it is possible to sensitize either a normal person or a syphilitic by one inoculation so that a second injection will give a positive reaction.

Of thirteen control cases, none reacted positively on second inoculation. Of fifteen luetic cases giving negative reactions, five gave positive reactions on second inoculation. It is impossible to say, however, whether this was due to sensitization by the first injection or to treatment, since all five patients were given either salvarsan or mercury before the second injection.

In two cases, the second injection gave a doubtful reaction. One of these was a case of infectious arthritis. The second injection of luetin was given two weeks after the first, and the following day, there appeared at the site of the first injection a superficial papule with an area of surrounding hyperemia, which increased in size during twenty-four hours to a diameter of 10 mm. and then rapidly faded. On account of the short duration of the reaction and the lack of induration the test was not called positive.

The second case was also one of chronic infectious arthritis of eight months' duration. Repeated Wassermann tests were negative and there was no history of lues. The second luetin injection produced a superficial papule with an area of hyperemia 10 mm. in diameter, in twenty-four hours, which faded during the next twenty-four to forty-eight hours. Three days later 0.3 gm. of salvarsan was given as a therapeutic test, without any noticeable effect at the site of the luetin injection. Another similar dose of salvarsan was given twelve days later, and the following day a reaction appeared at the site of the second luetin injection which ran a course similar to the previous reaction. Whether or not this may have been a case of luetic arthritis it is impossible to say, but the improvement of the patient, which had been slow with frequent relapses, was rapid and very marked after the beginning of the salvarsan treatment.

### TYPES OF REACTIONS

Besides the original types of reactions described by Noguchi—the papular, pustular and torpid forms—there have since been described several cases of the formation of a hemorrhagic exudate, the lesion usually breaking spontaneously and not running a more severe or longer course than the pustular. Two of the reactions in this series were of the hemorrhagic type.

Still another type of reaction has been noted in two cases in this series, characterized by the appearance within from twenty-four to forty-eight hours of a light purplish or violet areola from 35 to 40 mm. in diameter around a small, slightly indurated, reddened papule. During the next three or four days, the large areola fades, and at the same time the central reddened papule increases in size, becomes more indurated, and runs the course of an ordinary papular reaction.

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[1] For method of preparation of luetin, classification of types of reactio r. Med., 1911, xiv, 557;
Experimer Especial Reference to
Spirochae THE JOURNAL A. M. A.,
April 20.

### DOUBTFUL REACTIONS

In 120 tests, there were but five reactions which were not typically negative but which were too superficial and faded too rapidly to be called positive. One of these was in a case of syphilis which gave a positive reaction on second inoculation. Two were apparently non-syphilitic, and the other two have just been described.

### CONCLUSIONS

The luetin test is of practical value in a few cases of late syphilis (four out of thirty six) in which it is positive when the Wassermann is negative.

Second injections apparently do not give positive reactions in non-syphilitic cases.

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# RETRO-AORTIC LEFT RENAL VEINS *

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The complicated development of the inferior vena cava is responsible for numerous anomalies of the abdominal veins, since four of the veins present at varying stages of embryonal life take part in its formation. Among these anomalies the passage of the left renal vein behind the aorta has received least attention in medical literature, and I have succeeded in finding only sixteen instances of the condition reported.[1] Darrach,[2] in 605 dissections of the cat, an animal in which the venous system is prone to many variations, make no mention of this condition, and the character of the examination reported by Darrach leaves no doubt in the mind of the reader that had such an anomaly been present it would have been observed.

It is well known that the early symmetrical distribution of the venous channels in the embryo is soon lost. Ventral to each postcardinal vein, branches coming from the mesentery by a series of longitudinal anastomoses form a second vessel parallel to each of the postcardinal veins which open at each end and by numerous anastomoses throughout their length into the postcardinal veins. These vessels, termed by Lewis[3] the subcardinal veins, later anastomose with each other by a cross branch (*A*, Fig. 1) just below the superior mesenteric artery. This large anastomotic branch is continued to the postcardinal vein on each side, all other anastomoses between these channels tending to disappear at this time. The primitive, and later the permanent kidneys are connected with the postcardinal veins at this level. From this point upward the right subcardinal vein enlarges rapidly at the expense of the right postcardinal, and empties into the ductus venosus. The ductus venosus becames the permanent uppermost or first portion of the inferior cava. The enlarged right subcardinal vein, which comes to be the chief channel for the blood returning from the lower extremities, is therefore the second vessel which becomes a permanent part of the inferior cava.

According to F. Hochstetter,[4] the portion of the left subcardinal vein above the anastomosis referred to becomes the left suprarenal vein of the adult, while below the anastomosis the subcardinal veins cease to exist as blood-vessels but become lymph-channels.

The portion of each postcardinal vein immediately above the anastomosis (*A*, Fig. 1) disappears. At about this time a second important anastomosis develops between the postcardinal veins at the level of the fifth lumbar vertebra (*C*, Fig. 2). The right postcardinal vein, enlarging rapidly, constitutes the permanent lower portion of the inferior cava (Fig. 3). The left subcardinal vein between this anastomosis and the left renal vein disappears except that small portion of its upper part which forms the left spermatic vein (Fig. 3).

For a time the ureters lying dorsal to the postcardinal veins are surrounded by a venous ring produced by the development of a channel, which in turn is formed by *the longitudinal* anastomosis of veins draining the posterior abdominal walls. These newly formed vessels are called the supracardinal veins.[5] The ventral portion of this loop formed by the postcardinals disappears. On the right side the supracardinal vein persisting forms the third portion of the vena cava.

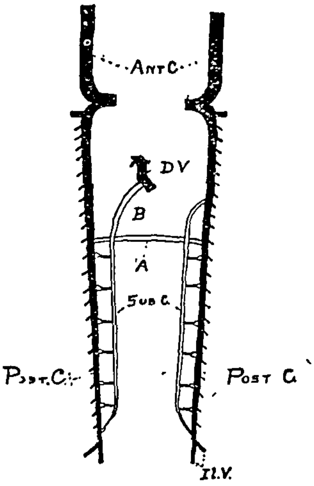

Fig. 1.—Relation between cardinal veins, subcardinal veins and the ductus venosus at an early developmental period. In this and the accompanying illustrations the abbreviations have the following meanings: *D. V.*, Ductus venosus; *Sub C.*, subcardinal veins; *Ant. C.*, anterior cardinal veins; *Post C.*, posterior cardinal veins; *Il. V.*, iliac veins; *Supra C.*, supracardinal veins; *R. V.*, renal veins; *Sp. V.*, spermatic veins; *Hem. V.*, hemiazygos veins; *Az. V.*, azygos veins; *Cor. S.*, coronary sinus; *A*, anastomotic branch between the subcardinal veins; *B*, upper portion of the right subcardinal vein; *C*, anastomotic branch between the posterior cardinal veins; *D*, anastomotic branch between the azygos and hemiazygos veins; *E*, site of the left postcardinal vein.

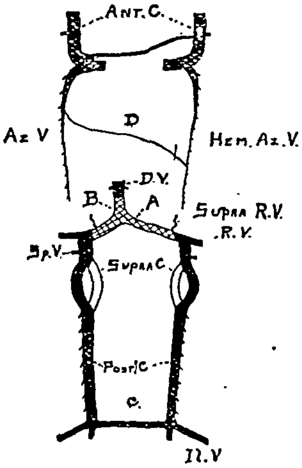

Fig. 2.—Intermediate stage in the development of the venous system.

In recapitulation, the inferior cava (Fig. 3) comes to consist of (1) the proximal portion of the ductus venosus; (2) the proximal portion of the right subcardinal; (3) the right supracardinal, and (4) the distal portion of the right postcardinal veins.[6]

According to Hochstetter, who is confirmed by other investigators, in dealing with anomalies of the renal veins, particularly the left renal vein, we have to do with vestiges of the original postcardinal channels. The instances in which a left renal vein passes behind the aorta, or is represented by one or more branches passing behind the aorta, are results of primitive anastomoses between these embryonal channels, the postcardinal veins which, instead of atrophying as they normally do, have persisted.

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* From the Pathological Laboratory of Rush Medical College.

[1] This search has not been exhaustive, but has included the Anatomischer Anzeiger, the Ergebnisse der Anatomie and Entwickelungsgeschichte, the Bulletin de la Société anatomique de Paris, the Centralblatt für allgemeine Pathologie und pathologische Anatomie, the Beiträge zur pathologischen Anatomie und zur allgemeinen Pathologie (Ziegler's), Virchows Archiv für pathologische Anatomie und Physiologie und für klinische Medicin, and a number of text-books on anatomy, pathology and embryology.

[2] Darrach, William: Variations in the Post Cava and its Tributaries as Observed in 605 Examples of the Domestic Cat, Proc. Assn. Am. Anatomists, 1906-1908, i, 30.

[3] Lewis, F. T.: The Development of the Vena Cava Inferior, Am. Jour. Anat., 1902, *i*, 229.

[4] The work of this author is cited by all writers on this subject, and as complete a reference as any, perhaps, may be found appended to a work by C. Meyer: Beitr. z. path. Anat. (Ziegler's), 1908, xliv, 1.

[5] McClure, C. F. W., and Huntington, G. H.: Development of the Post Cava and Tributaries in the Domestic Cat, Am. Jour. Anat., 1907, vi.

[6] Lewis, F. T.: Am. Jour. Anat., 1902, i, 229.

That anastomoses do exist between these postcardinal veins during embryonal development has been definitely shown by Davis,[7] who found as many as seventeen cross-branches between the postcardinals at one time during their development, and it is therefore not strange that one or more of these anastomosing branches frequently persist as a retro-aortic renal vein.

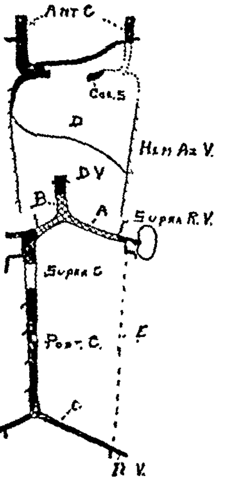

Fig. 3.—The embryonal channels which have united to form the vena cava of the adult.

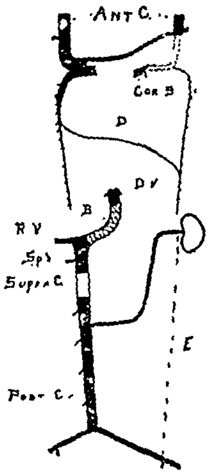

Fig. 4.—A primitive anastomosis such as has existed in six of the cases reported.

In reviewing diagrammatically the reported anomalies, Figure 4 represents the condition, an old anastomosis between the postcardinal veins, present in six of the sixteen, four reported by Gosset,[8] one by Gladstone[9] and one by Tichomirow.[10]

Figure 5 illustrates approximately the condition present in another example studied by Gosset, and in one reported by N. A. Batujew.[11]

Figure 6 represents the persistence of an anastomosis of the postcardinal veins in still another case reported by Gosset. Here the conditions are not very unlike those represented by Figure 5.

In an article discussing twelve malplaced kidneys, Meyer[12] has incidentally described seven in which the left renal vein passes behind the aorta. One of these instances is particularly interesting in that, according to Meyer, the left renal vein was formed by the persistent left cardinal, which entered the inferior cava at approximately the level of the point of entry of the right vein and behind the aorta (illustrated by Figure 7).

To these sixteen examples of anomalous renal veins I wish to add ten, records of which are in the files of the pathologic laboratory of Rush Medical College. Specimens 1, 2, 3, 4, 5, and 6 are identical and are the simplest type, in that, in each case, but one left renal vein is present, and this vein passes downward and to the right posteriorly to the aorta and enters the cava approximately 8 cm. below the mouth of the right renal vein (illustrated by Figure 4).

The fifth case has a single vein leaving the hilum of the left kidney which divides into two branches after passing downward a distance of 4 cm., both of these passing behind the aorta and entering the cava at different levels, the mouth of the upper branch being 4 cm. above that of the lower. This instance is similar to those reported by Gosset and Batujew (Fig. 5).

The remaining cases are more complex in their arrangement. In one of these (Fig. 8) the kidney is drained by one vein which, however, divides into three branches before entering the cava, one passing in front and two behind the aorta, emptying directly into the cava. From the posterior surface of this horizontal left renal vein two smaller branches are given off, each of which passes behind the aorta, emptying into the cava below the mouth of the horizontal branch. The superior or first posterior branch arises, as above stated, at a point 2.5 cm. to the right of the hilum of the kidney, passes behind the aorta parallel with the anterior branch and turns downward just before it emerges from behind the aorta, emptying into the cava 1 cm. below the point of entry of the branch first described. The second or inferior posterior branch arises from a point 2 cm. to the right of the hilum of the kidney and just below the point of the left margin of the aorta, turns to the right and joins the cava 4 cm. below the horizontal, anterior branch. The combined volume of the lumen of the two posterior branches is approximately equal to one-third that of the anterior branch. The right kidney of this specimen has a double pelvis with a separate artery and vein, for each, the lower venous channel emptying into the cava at a point on a level with the mouth of the upper retro-aortic vein of the left kidney.

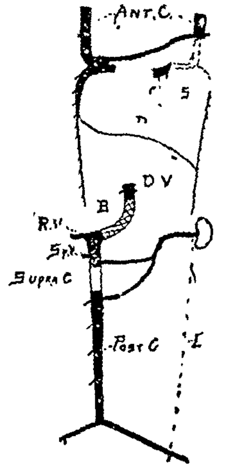

Fig. 5.—Persistent anastomoses present in a case reported by Gosset, and one reported by Batujew.

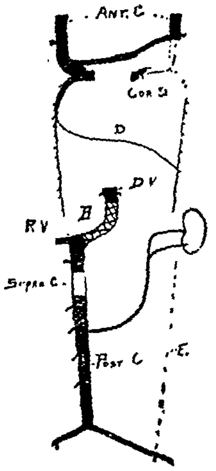

Fig. 6.—The condition present in one of the cases reported by Gosset.

The seventh specimen which I studied is an example of the so-called sigmoid kidney or a horseshoe kidney in which one arm of the shoe is imperfect. The lower pole of the left kidney is fused with the lower pole of the right, the upper pole of this organ being displaced to the left and partly behind the vena cava, while the left kidney lies anterior to the aorta and cava, its upper margin just below the point of bifurcation of the aorta. The combined weight of these kidneys is somewhat larger than normal. The left, or in this case the anterior, kidney is supplied by two arteries and two veins. The smaller vein passes upward from the hilum and enters the cava at a point on the anterior surface of the great vein 2 cm. above the level of the mouth of the iliac veins. The second and larger left renal vein emerges from the hilum of the kidney, passes upward and to the left, winding around the iliac artery and passing behind the aorta, enters the cava on the same plane, in which the first-mentioned branch does and at a point but a few millimeters lateral to it. The diameter of the lumen of this branch is the same throughout and is approximately three times greater than that of its fellow which passes from the pelvis to the anterior surface of the cava. Its length is 10 cm., while that of the former is 5 cm. The left suprarenal vein empties as usual into the upper surface of the retro-aortic branch, while the left spermatic empties into it at its inferior margin (Fig. 9).

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[7] Davis, D. M.: The Origin of the Vena Cava, Am. Jour. Anat., 1911, x, 461.

[8] Gosset, A.: Contribution à l'étude du développement de la veine cave inférieure et des veines rénales, Bull. Soc. anat. de Paris, 1898, lxxiii, 341.

[9] Gladstone: A Case of the Left Renal Vein Passing Behind the Aorta and the Bearing of These Abnormalities on the Development of the Abdominal Veins, Jour. Anat. and Physiol., vi, Part 3, p. 225.

[10] Tichomirow: Reviewed by L. Stieda: Bericht über die anatomische, histologische und embryologische Literatur Russlands für 1893, Ergebn. d. Anat. u. Ent., 1893, iii, 383.

[11] Batujew: Reviewed by L. Stieda: Bericht über die anatomische, histologische und embryologische Literatur Russlands, 1896-1897, Ergebn. d. Anat. und Ent., 1897, vii, 431.

[12] Meyer, O.: Zur Kenntniss der Gefässe einseitig kongenital verlagerter Nieren und Hufeisennieren, Beitr. z. path. Anat. (Ziegler's), 1908, xliv, 1.

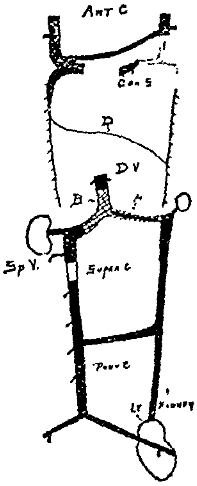

Fig. 7.—O. Meyer's case, a persistent left postcardinal vein in conjunction with a retro-aortic left renal vein.

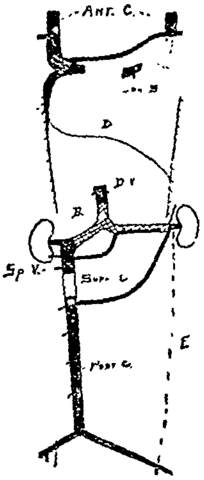

*Fig. 8.—Two retro-aortic left renal veins present in the first case here reported. A left renal vein passing anteriorly to the aorta is also present, as illustrated.*

The eighth specimen is an example of the persistence of the left postcardinal vein (Fig. 10). A single vein passes from the hilum of the left kidney toward the right for a distance of 3.5 cm., where it divides into two branches, the superior and smaller of which passes horizontally behind the aorta, emptying into the vena cava 1.8 cm. below the mouth of the right renal vein; the inferior branch passes downward a distance of 2 cm. from the point of bifurcation, then turning to the right passes behind the aorta and ends in the cava 4.5 cm. below the point of entry of the right renal vein. The left suprarenal vein, according to Hochstetter the remnant of the left subcardinal, empties into the left renal vein just before its bifurcation. The left spermatic vein empties into the inferior branch just after its division. One centimeter below the point of entry of the spermatic vein a large vein lying just to the left of the spinal column and parallel with it also empties into the descending portion of the inferior posterior branch. The vein originates from the left common iliac vein, which in this case is double, one part continuing on and joining the right common iliac to form the inferior cava, while the other at a point 6 cm. from the point of fusion of the two common iliacs turns upward on the left side of the vertebral column emptying, as before stated, into the inferior, posterior left renal vein. There is a small anastomosing branch between the two left iliac veins at the point at which the one turns upward to join the left renal vein. There is a second anastomosing branch between this left ascending branch and the inferior cava which is horizontal in direction, lies behind the aorta and is 3 cm. below the level of the inferior posterior left renal vein. For reasons which will be stated later, I believe that this anomalous vein is the persistent postrenal part of the left cardinal vein.

Instances of the persistence of both postcardinal veins have been recorded from time to time until now, though somewhat more numerous than anomalous left renal veins such as have been described, their number is approximately from twenty-five to thirty.

There is to my knowledge in the literature but one case of a postaortic left renal vein in conjunction with a persistent left cardinal vein, this being Meyer's specimen (Fig. 7), and in this instance the left kidney has a malposition.

In reviewing the recorded anomalies of persistent postcardinal veins it would seem that the authors have not given sufficient thought as to the possibility of their cases being abnormally large or anomalous lumbar veins, though in their own minds they may have completely ruled out such a possibility. There can be no doubt that the specimen represented by Figure 1 is one in which both an early embryonal renal and postcardinal condition has persisted, and with Meyer's case, which is by no means so perfect a specimen, makes the second example of the kind on record.

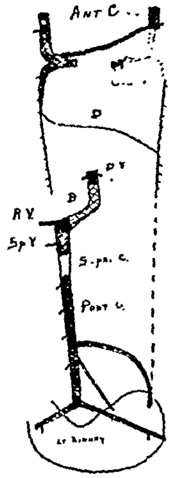

Fig. 9.—Illustrating the second case, the kidney in this instance being misplaced.

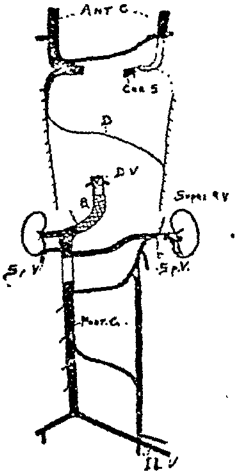

Fig. 10.—Illustrating the final case, in which the postrenal left postcardinal is present in conjunction with two retro-aortic left renal veins. The double left iliac vein and the anastomotic branch between the inferior cava and the left postcardinal are also represented.

That such a condition might exist is altogether possible, and the evidence in assuming the case to be one of persistent postcardinal vein lies in the following:

1. The left spermatic vein is given off from the descending portion of the inferior, posterior left renal vein in conjunction with the anomalous stem.

2. The channel under consideration has the proper location and direction for a posterior left cardinal vein.

3. The size of the channel warrants this belief.

4. The presence of an ileolumbar vein in connection with the external iliac vein on the left side is evidence that this is not a lumbar vein.

5. The reduplication of the left common iliac, one branch of which empties into this vein, undoubtedly has been an important etiologic factor in the persistence of this vein and is additional evidence.

All the recorded cases of retro-aortic left renal veins follow the general rule that all are on the left side, all have an oblique course and all enter the vena cava posterior to the aorta.

One might theoretically assume that in the recumbent position there would be more constriction (compression) of these retro-aortic veins between the aorta anteriorly and the vertebral column posteriorly than in the erect position. At least, it seems reasonable to believe that the abdominal viscera falling to the sides of an individual on his or her back and deriving their blood-supply from the aorta would put tension on the branches of the aorta which supply them and pull the aorta closer to the spinal column. Current explanations for orthostatic albuminuria are concerned with interference with the circulation of the kidneys. It seems appropriate to suggest a relationship between these retro-aortic renal veins and that condition known as hypostatic albuminuria, in which the urine is entirely free from albumin while the person is erect, but appears when he lies on his back. Falkenheim[13] has reported such an instance:

> The patient's urine was free from albumin after rising in the morning at 6 o'clock and remained free until retiring at 9 p. m. At 12 o'clock midnight, 3 and 6 o'clock the urine contained increasing amounts of albumin. If the patient went to bed at noon and remained there until midnight, specimens of urine examined during this interval contained albumin; and if he sat in a chair from midnight until the next morning the urine during this time was found to contain no albumin.
>
> Further observation established the fact that the position which the patient assumed in bed altered the amount of albumin present in the urine. When the patient lay flat on the back or on the left side the amount of albumin was greater than if he lay on his right side.
>
> At 11 o'clock in the morning the patient's urine contained no albumin. He was placed in a sitting posture, drank two glasses of water and a catheter was passed. Specimens of urine taken from time to time were albumin-free.
>
> The patient was then given another glass of water, placed on his back at 12 o'clock and a catheter passed and closed. At 12:03, 2.25 c.c. of urine were obtained which was albumin-free. At 12:08, 5:25 c.c. of urine were obtained which by both the acid and the heat test was positive. At 12:13, 4 c.c. of urine were obtained which contained albumin more copiously than in the preceding test ("Eiweisz hält reichlicher als in voriger Probe"). At 12:18, a final specimen was strongly positive.

Rolleston[14] reports three similar instances. Unfortunately, post-mortem examinations were not made on these bodies.

Von Leube[15] reported that in the examination of 119 healthy soldiers, 4 per cent. of the number had albumin in the urine on rising in the morning. Felsenburg,[15] after the examination of 53 soldiers, found albumin in the morning urine in 2.12 per cent. of the instances.

There is enough of parity between the occurrence of these two conditions, the clinically observed hypostatic albuminuria and the anatomically demonstrated retro-aortic drainage of the left kidney, to at least suggest some relationship between the conditions.

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[13] Falkenheim: Deutsch. Arch. f. klin. Med., 1884, xxxv, 446.

[14] Rolleston: Lancet, London, 1902, i, 285.

[15] Quoted by Pallitzer: Beiträge zur Kenntniss der orthostatischer Albuminuria, June, 1912.

# A NEW METHOD OF PREPARING MUSEUM SPECIMENS

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To the student of pathologic anatomy, the preservation of specimens with their natural colors has long been recognized as a matter of great importance, as it is by means of the accurate and artistic presentation of colors, together with the form of the original, that the pathologist is able to trace with accuracy the various tissue changes which present themselves in morbid anatomy. The wax models have disappeared; the colored pictures, presenting in the main but a superficial resemblance to the original structure, possess but a passing interest. With the work of Kaiserling, however, a new era dawned and a wealth of pathologic material was saved to the student of that important branch of medical science.

Notwithstanding the brilliant work of the Kaiserling school, a brief experience with that system soon convinces the curator that a further improvement in the method of developing colors in fresh specimens is needed. Nor can he fail to observe, in the attempted restoration of colors to old specimens, that the system of the German is strikingly deficient; for in this important feature of museum work, alcohol does not produce the desired results. Failure to restore the color in old specimens, together with the attendant cost of the alcohol, makes the discovery of a substitute for that agent a desideratum of great importance.

In presenting this preliminary note, a new method of preparing specimens, old as well as new, is substituted for the well-known alcohol procedure of Kaiserling — a method which not only avoids the pecuniary disadvantages attending the use of alcohol, but which, from the point of view of color, also results in advantages. After considerable experimentation in an endeavor to find a satisfactory substitute for alcohol, the use of a saturated solution of sodium chlorid gave such striking results, not only in the extraction of the formaldehyd content from the freshly prepared specimen, but also in the restoration of color to old Kaiserling specimens, that the solution in question became an important part of the new system. Old tuberculous viscera which had lost so much of their color as to render the tubercles in the intestinal walls practically invisible were restored to their natural colors by an immersion, for a period of six days, in the saturated salt solution. An old and discolored lung (pleurisy), a kidney 11 years old, together with a miscellaneous collection of old Kaiserling specimens, were similarly treated with striking results.

While the use of the sodium chlorid solution proved of distinct advantage in the process of clearing the specimens and developing the gross colors, a study of the results revealed the possibility of a further evolution of color production by restoring the finer tints which had been lost in the gradual process of deterioration. Experimental procedures proved that a solution of potassium acetate and nitrate would produce, in conjunction with the saturated salt solution, the desired end-restoration of the finer tints. With new as well as with old specimens, the tests proved that in the preparation of museum specimens, the use of alcohol could be avoided. After a number of experiments, it was conclusively demonstrated that the formaldehyd extraction and subsequent color development were far more satisfactory when the procedures in question were effected by means of the saturated salt and nitro-acetate solutions than by the more expensive method of using one or more alcohols.

The system employed in the preparation of specimens for the Pathological Museum of the George Washington University Department of Medicine involves the use of the following solutions:

SOLUTION 1

| | |
|---|---|
| Liquor formaldehydi | 200 c.c. |
| Potassium nitrate | 15 gm. |
| Potassium acetate | 30 gm. |
| Water | 1,000 c.c. |

SOLUTION 2

| | |
|---|---|
| Saturated solution of sodium chloride | q.s |

SOLUTION 3

| | |
|---|---|
| Potassium acetate | 60 gm. |
| Potassium nitrate | 30 gm. |
| Water | 1,000 c.c. |

SOLUTION 4

| | |
|---|---|
| Potassium acetate | 100 gm. |
| *Glycerin, C. P.* | 250 c.c. |
| Liquor formaldehydi | 5 to 10 c.c. |
| Water | 1,000 c.c. |

Depending on its size, the carefully washed fresh specimen is allowed to remain in Solution 1 for a period of from one to five days. With allowance for the extent of the pathologic changes as well as for the size of the specimen, formaldehyd extraction and gross color development are usually completed by Solution 2 in from one to three days. In Solution 3 (nitro-acetate solution) the time required for the complete development of the colors in the fresh specimen is from two to seven days, old specimens requiring, of course, a longer period of immersion. The specimen is then placed in the glycerin preservative fluid to which liquor formaldehydi is added to prevent the growth of molds. In the preparation of solid viscera (kidney, liver, spleen, etc.,), the color development of the deeper parts is of paramount importance. The best results will be obtained by placing the specimen directly in Solution 1 for a period of several days, at the end of which time it should be sectioned as desired and immersed (one or two days) in Solution 2. An immersion in Solution 3 for a period of from two to five days will complete the color evolution of the exposed surface of the sectioned specimen with a remarkable degree of perfection. In the preparation of old specimens, the Kaiserling-preserved viscus admits of a remarkable degree of color restoration by the use of Solutions 2 and 3. Old specimens should be placed in Solution 2 for a period of from two to five days, then in Solution 3 for a similar period of time. During the year in which this method of preparing museum specimens has been tried, the results have proved eminently satisfactory. Daylight and direct sunlight have in no way affected the variety and brilliancy of the colors. Shrinkage of the specimens has not been observed and a crucial test — drying a specimen in the air for several days and recoloring with Solutions 2 and 3 — has given excellent results in the recovery, not only of the form of the original, but also of the color differentiation obtained at the time of preservation.

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**Getting Results.**—Authors who put off their thinking until they come to write are like a sportsman who goes forth at random and is not likely to bring very much home.—Schopenhauer.

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# HEMOTHORAX CAUSED BY RUPTURE OF A DISSECTING ANEURYSM. RECOVERY

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*History.*—The patient, D. F. D., a man aged 40, married, was admitted to the medical ward of the Presbyterian Hospital at 1:30 a. m., July 15, 1913. He had had the usual diseases of childhood, including diphtheria. Since childhood he had been healthy. Fifteen years ago, at the age of 25, he had an attack of rheumatic fever, which confined him to the house for a week but did not damage his heart. Except for occasional annoyance from hemorrhoids, the man has not been sick since 1898. He uses tea and coffee very moderately, but drinks a moderate amount of beer every day and confesses to occasions of inebriety. He denies venereal disease. The family history is negative.

For twenty-three years the patient was a bricklayer and has had much climbing to do, especially when employed on tall buildings. It has not been at all unusual for him to climb twelve stories a day, carrying a 25-pound kit of tools. For a year he has been a traveling salesman, and has indulged freely in alcohol, though not to excess.

*Present Illness.*—The patient states that for about six months he has been getting short of breath, especially when going up stairs and has had pain in the heart and across the upper portion of the chest, which became severe four days before the attack to be described, and on the day of the attack was worse than at any previous time. These pains come on independently of exertion or emotion and apparently have no relation to digestion. They are not very severe and are not associated with fear of death (angina?) The patient's appetite is good; his bowels are regular. No cough or hoarseness existed until two days before admission when a cough developed, accompanied by some expectoration but no hemoptysis. No swelling of the ankles has been present.

July 14 he started on a business trip and was carrying two heavy valises. When he reached the train-shed, the patient became anxious about the time and ran to his sleeping-car. While running, he suddenly became short of breath and broke out into a profuse perspiration. He felt very weak and almost fainted, but by great effort got to the coach and into a seat, panting for breath. The dyspnea was very great. He was conscious during this attack, was nauseated, vomited and had diarrhea, but suffered no pain. The patient insists that his only discomfort was the dyspnea. His wife states that he became very pale. He was admitted to the Presbyterian Hospital approximately two and a half hours from the time the attack began. While waiting for the ambulance to arrive, the patient was forced to sit upright. The dyspnea did not increase and he had no pain. When admitted, there was but little dulness over his left chest.

The patient, after admission, had a fairly comfortable night. He could not lie flat, however, and spent the remainder of the night sitting up in bed. The resident physician noticed a few hours after admission that there was restriction of expansion on the left side of the chest, especially anteriorly. The percussion note was flat over this area, and the heart could not be outlined with any degree of accuracy. The breath-sounds and vocal resonance were diminished on the left side anteriorly and posteriorly. The heart-sounds were not well heard. The pulses were equal, full and regular, and the vessels did not seem to be sclerosed.

I saw the patient for the first time about ten hours after admission. He was then propped up in bed, was breathing with more difficulty, and pallor was marked. He complained at this time of discomfort in the left chest, which he described as a dull, heavy pain or sense of oppression. There was no sharp, stabbing pain. The heart was displaced, its right border being 4 cm. to the right of the sternum. The apex-beat was not palpable, and the left border could not be determined, owing to the flatness in the left chest into which the cardiac dulness merged. There was impaired resonance over the apex of the left lung, and flatness over the base with all the usual signs of a large pleural effusion. The aorta was found to be slightly dilated, but no definite sign of aneurysm was present. The pulse was irregular. The blood-pressure was 145 mm. Hg systolic, and 65 mm. Hg diastolic. A Wassermann test was negative.

| BLOOD-COUNT | |
|---|---|
| Hemoglobin | 60 per cent. |
| Erythrocytes | 3,120,000 |
| Leukocytes | 13,250 |

| DIFFERENTIAL | |
|---|---|
| Polynuclear | 60 per cent. |
| Lymphocytes | 33 per cent. |
| Large mononuclear | 6 per cent. |
| Transitional | 1 per cent. |

The urine had a specific gravity of 1.021, but apart from a cloud of albumin was otherwise apparently negative. The temperature was 97.8, pulse 108, and respiration 44.

Owing to the symptoms of pressure, the left chest was aspirated about 12 noon, July 15, 1913, nearly fourteen hours from the onset of the first symptoms, and 650 c.c. of a bloody fluid were withdrawn. Following this the patient breathed more easily and the pulse became stronger and less irregular. The fluid from the pleura contained approximately the same number of erythrocytes per cubic millimeter as the blood, namely, 3,000,000.

July 18, the patient was in a condition which warranted his removal to the Roentgen-ray laboratory. The picture taken at this time corroborated the diagnosis of a dilated aorta and hemothorax. During his stay in the hospital the patient had a febrile temperature but complained of nothing after the thoracentesis, and was discharged July 27, 1913, very much improved.

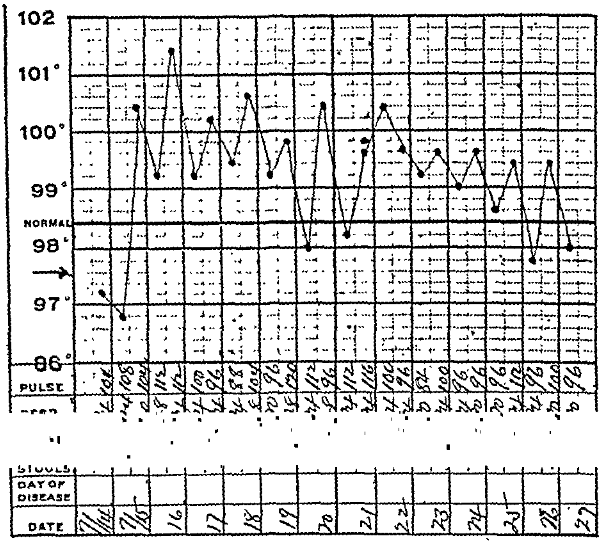

Chart of temperature, pulse and respiration of Patient D. F. D.

Shortly after his discharge from the hospital the patient presented himself at the university hospital for a fluoroscopic examination, which was made by Dr. Graves. A large diffuse aneurysm of the aorta could be plainly seen. The left chest showed a dense shadow due to the hemothorax.

In the fall the patient wrote that he was engaged in active business in the middle West and that his health had been good except that he had occasional pains about the heart and in the scapular region, which became worse on lying down.

Nov. 26, 1913, the patient appeared at my office. Except a lessening of the extent of flatness in the left chest, the physical signs were about the same as in July. Roentgen-ray and fluoroscopic examinations were made Nov. 28, 1913, and revealed a less extensive shadow in the left chest while the aorta was dilated as on the first examination.

There can be no doubt but that in this patient we have to do with a hemothorax whose origin must be ascribed to the rupture of a preexisting aneurysm. It is far from likely that, as a result of the effort of running for the train, there could be a sudden rupture of a normal aorta, with the resulting bloody effusion, and it seems more probable that an aneurysm had been existent for some time. Indeed, it was beginning to make its presence felt by pressure symptoms—cardiac oppression, chest pains. Just how long the aneurysm had been present it is impossible to say, but these symptoms had been existing with exacerbations for six months before the rupture. Of the important etiologic factors in the production of arterial disease, only syphilis is lacking in this man. The patient admits abuse of alcohol and has been accustomed to extreme hard work, but denies syphilis, and there is no reason to doubt his statements.

The question whether a normal aorta or an aorta only moderately diseased can be ruptured by muscular exertion has been often discussed, although there can be little doubt that an aorta which is the seat of an extensive degeneration can be ruptured as the result of an unusual effort. Busse[1] believes that sudden extreme muscular exertion can rupture a perfectly healthy aorta, and holds that if the aorta wall is the seat of the disease, a very slight effort may have the same consequences. He offers an instance of rupture of a supposedly normal aorta in the case of a coachman aged 38, who, while trying to fasten two terrified horses experienced a sharp pain in the breast. The pain was of such intensity that he was forced to release the animals. The precardial distress and the headache which followed gradually wore away and the man returned to work the next morning. He was ordered to drive the same horses again. The beasts became terrified at an electric car and attempted to run away. By a tremendous effort the driver succeeded in holding them in check, but again experienced a pain in his chest, followed by vomiting and collapse. He was put to bed, but the next day, forty-eight hours after the first attack of pain, he died.

The necropsy revealed an aneurysma dissecans, which Busse believes was the direct result of the violent exertion. A noteworthy feature was that there was no sign of degeneration or softening throughout the whole extent of the aorta. Busse conjectures that forty-eight hours before death the break in the arterial coat had begun and that a dissecting aneurysm then resulted. The second exertion, about twenty-four hours before death, is held responsible for the final rupture. This author presents, as exemplifying his second theory, namely, slight effort serving to rupture a diseased vessel, the record of an old woman, who died following effort at defecation. In Busse's paper other cases are reported of spontaneous rupture following effort.

Schede[2] has subjected cases like those reported by Busse to a thorough and thoughtful criticism, and offers strong argument that in none can a degeneration of the aorta be excluded. To conclude, from a study of an isolated portion of a vessel, that it is healthy is not safe, and unless the whole vessel is carefully studied inferences as to normality are unwarranted.

Woloschin, despite Schede's argument, records the case of rupture of a perfectly healthy aorta [*sic*] following unusual effort. The rupture took place into the left pleural cavity (3.500 c.c.) from a break in the aorta about 1 cm. in size.

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[1] Busse: Virchow's Arch. f. path. Anat., 1906, clxxxiii, 440.
[2] Schede: Virchow's Arch. f. path. Anat., 1908, cxcii, 52.

It is more than probable that in all cases there has been some degeneration of the aorta, which may be very difficult to determine. Indeed, Tschechowski has shown that such a degeneration may follow acute and chronic infections without any inflammatory changes in the aorta.

According to statistics, aneurysms rupture very infrequently, only thirty-two instances of rupture (0.69 per cent.) occurring in 4,593 cases of aneurysm.[3] Of the thirty-two cases, thirty, or 93.75 per cent., were in men, and two, or 6.25 per cent., were in women. The average age was 40.4 years. As to the structure most frequently receiving the contents of the aorta, the accompanying table may be consulted.

STRUCTURES INTO WHICH ANEURYSMS MOST COMMONLY RUPTURE

| Parts | No. of Cases | Percentage |
|---|---|---|
| Pericardium | 13 | 40.62 |
| Pleura (left) | 7* | 21.87 |
| Esophagus | 3 | 9.37 |
| Externally | 3 | 9.37 |
| Trachea | 2 | 6.25 |
| Pleura (right) | 1 | 3.12 |
| Lung (left) | 1 | 3.12 |
| Bronchus (right) | 1 | 3.12 |
| Superior vena cava | 1 | 3.12 |

* One of these cases was a case of dissecting aneurysm.

Although spontaneous cures of ruptured dissecting aneurysms have been reported, I have been able to find no case in literature where such a massive hemothorax has occurred without a fatal outcome. In all cases of hemothorax following rupture of the aorta, death has resulted in a few hours. The case herewith reported, therefore, has an unusual interest, and is believed to be worthy of publication.

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# THE DISAPPEARANCE OF SUGAR IN DIABETICS AFTER CERTAIN PELVIC OPERATIONS [*]

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There is no doubt that we have deviated from our older and more orthodox views in regard to surgical intervention in cases of urgency in the presence of diabetes. Particularly in prostatic disease it has been shown that operation is well borne and that diabetes, if not too far advanced is no contra-indication.

That prostatectomy or hysterectomy in diabetes of long duration is occasionally followed by a subsidence or total disappearance of the sugar output is a new theme for which there is no plausible explanation at hand.

## COLLECTED REPORTS OF CASES

Case 1.—In the discussion of Joslin's paper,[1] Miller mentioned the following case: A woman passed 50 gm. of sugar in spite of being on a rigid diet. She had very severe uterine hemorrhages, and as a result was markedly anemic. A hysterectomy was performed. It was found that a carcinoma had developed on an old fibroid tumor. Several months later the patient returned, and it was found that she was entirely free from sugar. She is still well in spite of taking an unlimited diet.

Case 2.—*In closing the discussion Joslin reported a similar case:* The patient had a severe attack of diabetes; the glycosuria occurred in connection with a fibroid tumor of the uterus. When the fibroid was removed the sugar disappeared.

The following two cases are reported by Manges, to whom credit is due for bringing conspicuously into the limelight of clinical medicine this fact, which probably has been in the minds of other observers, but remained unexpressed. Manges' two cases occurred in prostatics.

Case 3.—The first case occurred ten years ago. The patient was a man aged 62, with long-standing diabetes. He had prostatic bladder symptoms of several years' duration. On account of his severe diabetes, the daily amount of sugar ranging from 50 to 150 gm., and a marked acidosis being present, he was considered a bad surgical risk, the more so as he had a very vulnerable skin. Finally the condition of urinary sepsis became so urgent that drainage of the bladder and prostatectomy were performed. The operation was well borne, and a marked improvement in the diabetes was noticed. The sugar excretion remained below 20 gm., and the acidosis disappeared. About one and a half years later the diabetes again took on a severe form and the patient succumbed to that disease.

Case 4.—The second case occurred in a man aged 70. He had a long-standing diabetes and prostatic disease. The sugar ranged between 3 and 5 per cent. in spite of diet, and there was marked acidosis. A bad urinary sepsis supervened and operation was performed. Calculi were removed from the bladder and the prostate gland was enucleated. Subsequently the sugar disappeared completely and remained away in spite of a liberal diet.

After a careful search of the literature, I have been unable to find any similar case-reports.

To *this list of four cases I wish to add two of* advanced prostatic disease with pronounced and severe diabetes in which all traces of sugar disappeared from the urine soon after operation.

## AUTHOR'S CASES

Case 1.—M. G., aged 54, a robust, florid man, had had diabetes for a number of years, and was passing at the time I first saw him a urine giving a marked reaction for sugar. No quantitative estimate was obtainable nor was there any knowledge of the presence of acid bodies. At this time he complained of marked bladder tenesmus with frequent urination and burning. Cystoscopy revealed the presence of numerous calculi in the bladder. The prostate at this time was slightly enlarged, but there were no symptoms of obstruction. In view of the diabetes a stone-crushing operation was done, with only partial success. Prostatectomy at this time was not even thought of.

May 4, 1910, a suprapubic operation was done under local anesthesia, and eight calculi were removed. The patient made an uneventful recovery and continued to pass urine giving a marked sugar reaction.

The patient was not seen again until December, 1912, when he complained of pronounced obstructive symptoms, and on several occasions had to be catheterized for retention. At this time he was passing from 2.5 to 3 per cent. of sugar, and the prostate was very large. The dangers of an operation in a diabetic were explained to him, but he said that he would rather die than live on in his present condition.

Dec. 9, 1912, prostatectomy was performed under nitrous oxid anesthesia. The patient left the hospital cured after sixteen days.

Two weeks later, in my office, the urine was turbid and to my astonishment did not react to the Fehling test. I felt that I could not explain this fact otherwise than that the products of exudation present in the urine at this time inhibited the reaction. As months went on the urine cleared and at no subsequent time did sugar reappear.

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[3] Kelynach: Lancet, London, 1897, xi, 193.

[*] Read before the Metropolitan Medical Society, Jan. 27, 1914.

[1] Joslin, Elliott P.: My Experience with Diabetic Patients Living Ten or More Years, THE JOURNAL A. M. A., Sept. 21, 1912, p. 933.

Unfortunately this patient, who was restored to complete health, was hit by a Brooklyn trolley-car in July, 1913, sustained a fracture of the base of the skull and died.

Case 2.—Mr. J. G., aged 45, a man of slight build and much exsanguinated, was on his way from Chicago to Carlsbad for treatment for diabetes. The quantity of sugar the patient had been passing was unknown, and could not be estimated for reasons hereafter to be seen. April 12, 1912, I saw this patient for the first time. He had arrived in New York a day or two previously. On the train soon after leaving Chicago he began passing bloody urine. This continued and became aggravated until I saw him. He was then very much exsanguinated and nervous, with a constant desire to pass water, and had a bloody discharge from the meatus. Percussion of the bladder showed it to be much distended, and large quantities of clotted blood were aspirated through a catheter. A permanent catheter was fixed in the bladder. The patient was much relieved, but bleeding continued. Various internal hemostatics were employed without effect. The patient refused operation. Rectally the prostate was found to be of enormous size, particularly for a man of only 45. After several days without relief from lesser measures, he was prevailed on to submit to cystotomy.

April 18, 1912, the bladder was opened and the bleeding was seen to come from a large adenomatous prostate. The prostate was then enucleated. Recovery was slow and after six weeks the patient continued his journey to Carlsbad. I had made no examination of the urine for sugar after the operation. The patient returned to America in the fall of 1912 and come to report to me that he was entirely well and that he had lost all his sugar in Carlsbad.

In view of the cases reported by Miller, Joslin and Manges, I am disposed to contest the benefits of the Carlsbad cure in this case.

In our present knowledge of diabetes it is futile to attempt an explanation for the disappearance of sugar from the urine after operation. At best we can only continue to observe and to extend our knowledge of such instances, accepting the facts as pure empiricism. To dismiss the matter as a coincidence is absurd.

Spontaneous cure in diabetes is known, according to Naunyn, although very rarely, and then only after traumatic or syphilitic diabetes of short duration.

The instances cited are all cases of advanced and pronounced diabetes. Whether hyperglycemia was present in any of the cases, or whether it persisted after the disappearance of the sugar in the urine, is unknown.

Von Noorden refers to the marked improvement or cure of diabetes in cases which develop chronic granular nephritis, and are marked by hypertension and cardiac hypertrophy. So far as is known, neither Manges' cases nor mine were accompanied by granular nephritis.

In one of Manges' cases the disappearance of the sugar was incomplete; in all the others it was complete. In my first case it is noteworthy that the operation of cystotomy had no effect on the sugar output, although all symptoms of irritation were removed thereby.

The wide anatomic distribution of the organs that are known to cause glycosuria in their pathologic conditions, that is, the medulla, the pituitary body, the pancreas, the liver, and the adrenals, might suggest that also in the pelvis there exist organs which, by their internal secretion in pathologic states, disturb the glycogenetic function.

The temptation is great to venture further in the field of speculation, but in our present knowledge of glycosuria it is wiser to study more carefully the nature of these diseases when associated and to reserve our conclusions for some future time.

One important and fortunate inference can be drawn, however, and that is that diabetes must no longer be viewed as an absolute surgical barrier, at least for hysterectomy and prostatectomy, and that at least in some cases a cure of the diabetes may be looked for.

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# THE RESPONSIBILITY FOR THE FAILURE TO DIAGNOSE TUBERCULOSIS IN ITS EARLY STAGES *

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Having had under observation recently a large number of patients undergoing sanatorium treatment for pulmonary tuberculosis, I was impressed with the frequency with which the diagnosis of tuberculosis was made only long after the patient had first presented himself to a physician with symptoms suggestive of the disease. On further inquiry I found that in but twelve cases out of a total of sixty-six was the diagnosis of pulmonary tuberculosis made immediately, or within a few weeks after the patient first sought a physician. These figures would not necessarily indicate any lack of diagnostic skill or thoroughness on the part of the physicians concerned, for, as is well known, the early diagnosis of pulmonary tuberculosis is frequently a matter of the greatest difficulty. I decided to determine, however, as far as possible, what means had been employed by the physicians to establish the diagnosis in the fifty-four instances in which the diagnosis had been made only after from three months to as long as five years after the patient had first sought a physician presenting symptoms suggestive of, and undoubtedly referable to a tuberculous pulmonary infection.

Of the measures to be employed in establishing the existence of pulmonary tuberculosis, the three most important — and, in fact, the indispensable ones — are the physical examination of the chest, the determination of the existence or non-existence of fever, and the examination of the sputum for the presence of tubercle bacilli. To this list might be added a careful history, and some might be inclined to add also the performance of one or more of the various diagnostic tuberculin tests.

To my mind, these tests are too variable, and as yet their significance too difficult of interpretation, except by the most experienced, to warrant their general employment as diagnostic measures. I have consequently directed my efforts toward determining how frequently in the cases cited these three measures, the determination of temperature, the physical examination of the chest and the examination of the sputum were employed in attempting to establish the diagnosis. A number of the fifty-four patients whose histories were studied visited more than one physician; several of them, in fact, convinced that they were subjects of an early tuberculous infection, in spite of the attempt of physicians to reassure them, visited almost every practitioner in the community in which they lived. I have thus collected the records of the examinations performed as a result of the visits of these fifty-four patients to

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* Dr. Lavenson died July 4, 1913, at Los Angeles, from tuberculosis. The article gains interest from the fact that he wrote from the point of view of the physician and his responsibility as well as that of the patient.

seventy-two different physicians. Summarized, they are as follows:

In 13.8 per cent. of the cases neither physical examination nor sputum examination was made, nor was the temperature taken.

In 52.7 per cent. of the cases a physical examination alone was made.

In 12.8 per cent. the temperature was taken and a physical examination made, but the sputum was not examined. (In one of the cases included in this group the patient had no sputum at the time the other examinations were made.)

In 8.3 per cent. the temperature alone was taken.

In 4.1 per cent. a physical examination was made and the sputum was examined, but the temperature was not taken.

In 5.5 per cent. of the cases the patient, referring the complaint to the larynx, sought a laryngologist, and in these cases only a laryngeal examination was made.

One patient had the sputum examined, but neither was physical examination made nor was the temperature taken.

In but one instance in which the diagnosis was not made were physical and sputum examinations made and the temperature determined.

It may seem entirely unnecessary to remark on statistics so obvious as these, yet I feel that it is necessary in the interest of a matter of the greatest importance in the attitude of the physicians of this country toward the public health. The fact that when subjects with symptoms of pulmonary tuberculosis presented themselves for medical care, but one physician out of seventy-two performed the three absolutely essential tests before denying the existence of tuberculosis, denotes a deplorable lack of thoroughness in the professional attitude of physicians toward patients presenting themselves with the early symptoms of tuberculosis. Moreover, in 13.8 per cent. of the cases, not one of these measures was performed, even though in almost all of the patients the symptoms were sufficient to justify more than a suspicion of the existence of pulmonary tuberculosis, and in all were such as to justify an examination for its possible existence.

In the remaining cases the examinations performed denote that the attending physicians appreciated the fact that the symptoms pointed toward the possible existence of pulmonary tuberculosis, and measures directed toward its detection were instituted. Yet they were, as the results show, in the majority of cases, so deficient as to be almost useless. In 52.7 per cent. of the cases a physical examination alone was made. In considering the significance of these statistics, it must be noted that the patients from whose records they are derived belong in great part to those who visit general practitioners. There is no doubt that, in a fairly large percentage of the early cases of pulmonary tuberculosis, the diagnosis can be made from the physical examination by a competent clinician or a specialist in tuberculosis. I do not believe, however, that the same is true concerning the average general practitioner. A recognition of the slight changes in physical signs which characterize the earliest stages of pulmonary tuberculosis requires a degree of proficiency in physical diagnosis that the general practitioner does not command. It may be that in the peculiar position to which he is subjected by the economic conditions surrounding him, the general practitioner cannot be held entirely to blame for his lack of diagnostic skill. Be that as it may, one thing is certain—either he must become more proficient in physical diagnosis, or he must call to his aid those whose larger experience in this work has endowed them with greater skill. Moreover, in some of the instances in which the physical examination was made, it is the examiner's thoroughness rather than his ability that must be impeached; for in six cases the examination was performed through all or a portion of the clothing, a procedure which makes a negative result absolutely worthless; in three other instances the physical examination consisted of percussion alone, and in four instances auscultation was performed by direct application of the ear to the chest, a method that, except in rare instances, scarcely insures sufficient recognition or localization of signs to justify much dependence on the findings resulting therefrom.

Finally, it must be taken into consideration that in a certain number of cases of incipient tuberculosis, even the most expert physical diagnostician cannot discover physical signs sufficiently distinctive to justify a diagnosis. In the majority of such instances, however, further investigation along the lines suggested in connection with a careful consideration of symptoms and history will reveal the true nature of the condition. Suffice it to say that under no conditions is a physician justified in denying the existence of an incipient tuberculosis on the basis of a physical examination alone.

A somewhat greater degree of diagnostic thoroughness is indicated by those instances in which, in addition to a physical examination, either the temperature was taken or the sputum was examined. I have included as instances in which the temperature was taken all of those cases in which it was taken even though but once, and unfortunately the greater number of cases come within this group; in most of the cases the temperature was taken only on the patient's visit to the physician, regardless of the time of day. It is generally recognized that a temperature record of less than two or three times a day for a period of at least a week cannot be considered as of much diagnostic importance in early pulmonary tuberculosis.

The sputum examination, if positive, at once establishes the diagnosis, but unfortunately a negative result does not possess the same significance in proving the non-existence of a pulmonary tuberculosis, and by a proper consideration of the other diagnostic features a fairly large percentage of cases of early pulmonary tuberculosis can undoubtedly be diagnosed before bacilli appear in the sputum.

The fact that in 5.5 per cent. of the cases the patients were subjected to a laryngoscopic examination only emphasizes the fact that unless a patient's laryngeal symptoms are fully accounted for by the existence of a local non-tuberculous condition, he should be subjected to a complete general examination for the existence of a pulmonary infection.

I do not attempt to maintain that were the proper diagnostic measures employed in these fifty-four patients the diagnosis would have been established at once in all of them, but it is fair to assume—and this assumption is justified by the subsequent histories in many of the cases — that in a large percentage of them the diagnosis could have been made. We have gone to much trouble to acquaint the masses of the people with the early signs of tuberculosis, but does our obligation cease there? When patients present themselves to us with symptoms of early tuberculosis, is every possible measure employed to determine if the disease actually exists? Judging from the few statistics that I have collected, it is not, and if these statistics are representative of conditions existing throughout the country, there must be a radical change in the attitude of the general practitioner toward the early diagnosis of pulmonary tuberculosis before we can begin to think of successfully combating the disease.

I believe that the first step in this change must be a general adoption of the plan to subject every patient presenting himself with symptoms even remotely suggestive of tuberculosis to a thorough physical examination; to have his temperature taken morning, afternoon and evening for at least a week; and to have the sputum examined several times, unless bacilli should be found in one of the earlier examinations. If the latter examination should be negative and the physical examination and temperature record should present findings of a doubtful nature, either the assistance of a physician of greater diagnostic skill or experience should be obtained or the patient kept under more or less constant observation until the physician is thoroughly satisfied that no active tuberculosis exists. This may result in the production of a certain amount of what might be termed "objective phthisiophobia" on the part of physicians, and possibly more or less "subjective phthisiophobia" among laymen, but I believe that this would not be an undesirable and certainly not a serious state of affairs.

I am convinced that only when physicians in general assume this attitude of suspicion toward every patient presenting himself with symptoms in any way suggestive of tuberculosis will a much larger percentage of incipient tuberculosis be recognized than is at present. It is much pleasanter to perform some superficial examination to ease the professional conscience, and then happily inform the patient that his fears are unfounded and that nothing can be determined to warrant a diagnosis of tuberculosis, but the physician who performs the more unwelcome task of advising his patients that, though nothing definite can be found, further observation or a visit to a more experienced physician is necessary, performs his duty better by his patients and by humanity.

As to another phase of the early diagnosis of pulmonary tuberculosis that I noted in my observations, it is somewhat more difficult to comment. It may be unjust to draw conclusions from eight or nine instances, but in collecting the preceding data I met at least that number, indicating a deplorable lack of what might be called text-book knowledge of the significance of the signs and symptoms of tuberculosis. In several cases frank pulmonary hemorrhages were regarded as of no significance whatever, and the patients were assured that they absolutely did not have tuberculosis. It cannot be said too emphatically that, except in the rarest instances, the expectoration of blood is a definite and unmistakable sign of the existence of pulmonary tuberculosis. The assurance of a physician that the expectoration of several mouthfuls of blood must have come from the nose is very consoling, but it is very seldom based on fact. In several cases the consolidation of almost an entire lung associated with an afternoon temperature of 99.4 to 100 for a period of more than five months was diagnosed as pneumonia. In several instances the significance of a continued afternoon temperature of 99.4 or slightly higher was entirely ignored. In the one instance in which both physical and sputum examinations were made and the temperature was taken, a daily afternoon temperature of 99.2 to 99.4 was observed over a period of many weeks, and in spite of this, neurasthenia was diagnosed. Another common fallacy appears to be for physicians to ignore the existence of closed cases, and flatly to deny the existence of pulmonary tuberculosis when the sputum examination is negative, despite the very positive nature of other signs and symptoms.

In this connection, a rather humorous incident was related to me by one patient illustrating how the significance of so-called diagnostic tests can be misinterpreted. The patient presented himself to a physician, fearing that he had contracted tuberculosis. After some preliminary examinations had been performed, the patient asked that his sputum be examined, but was informed by the physician that the sputum examination was an "old-fashioned" method of recognizing pulmonary tuberculosis, and that the new method consisted in the performance of the ophthalmo-tuberculin test. Incidentally, the result of the performance of the test was negative and the patient was told that he did not have tuberculosis; a short time later he was found to have advanced pulmonary tuberculosis.

It is possible that in some of the cases I have collected the physician has recognized the existence of tuberculosis, and out of a mistaken sense of kindness to the patient or a desire to avoid the painful task of acquainting him with his condition has not informed him of his findings. I believe that nothing can justify such a course. Not only is the patient unable properly to strive as he should to improve his health, but if his sputum contains bacilli, unless he be fully acquainted with the dangers to which he subjects others by promiscuous expectoration, he also becomes a constant source of danger to his associates.

I feel that I must emphasize that this is not intended as an attack on the general practitioner. It is but a plea that the general practitioner, who is, and will continue to be the most important factor in the fight against tuberculosis, shall recognize and perform his duty toward his patients and humanity, and a plea for the sufferer with tuberculosis. His only hope lies in the early recognition of his condition, and I feel confident that the proper course shown him there is no physician worthy of the name who would hesitate to perform any task within the bounds of his professional activities to give the tuberculosis patient that which is to him at least greater than the preservation of health, the restoration to health and the activities of life.

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# THE PROTECTION OF GRANULATIONS

## A NEW DRESSING MATERIAL

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It is my desire to call attention to the advantages of certain modifications in the management of large granulating areas resulting from extensive burns and mechanical injuries, and to offer some suggestions that will greatly simplify the task, mitigate the suffering and not violate the surgical principles involved.

The surface of a granulating wound is usually covered with an albuminous material which exudes from its vascular elements and consists of serum, fibrin, red cells and leukocytes. Closely adherent to the surface cells is a thin layer of fibrin enmeshed in which is an enormous number of white cells. This exudate is not offensive and purulent, but in function defensive and protective to the underlying embryonic tissue.

When collected in quantities under favorable conditions this exudate, being an excellent medium, is easily infected. The result of infection is usually disastrous to the reparative phenomena, since a purulent process necrotizes the advancing embryonal cells and seriously retards healing.

A wound of the type under discussion, whether infected or non-infected, is usually dressed with dry gauze, a moist occlusive, or a moist evaporating or ointment dressing. I am inclined to believe that generally there is too much confidence placed in the antiseptic qualities of the chemical used and not enough consideration given to the character of the dressing applied.

Careful clinical observation of occlusive dressings applied to wounds of this nature will convince one that they are irrational and unsurgical. An occlusive dressing, whether it be an antiseptic ointment, moist antiseptic gauze covered with some impervious material or what not, does not drain the wound surface. If the wound is not infected the normal wound products are held in increasing quantity. The presence of heat and moisture converts this medium into septic material on the admission of pyogenic organisms, since no wound, however carefully guarded, remains strictly aseptic for more than twenty-four hours.

If the wound be infected, conditions are made decidedly worse by the application of this type of dressing, since the infection is induced to spread to surrounding tissues, which are macerated and thereby lowered in resistance. The antiseptic action of the chemical component is negligible when compared to the ill effects of the poultice-like dressing. It has been demonstrated many times that bacteria actually increase rapidly in the meshes of antiseptic gauze if evaporation be prevented. An antiseptic to be potent under these conditions would be of germicidal strength and would then kill the delicate tissue-cells as well as the flora in the wound.

A dry dressing such as plain or chemically treated gauze or antiseptic powder is safer both in theory and in practice than the occlusive dressing, but requires most careful attention and frequent change, since it has the disadvantage of permitting early inspissation of the wound discharges. The drying of the exudate in the powder or in the gauze forms a crust with the result that either dressing thereby becomes occlusive.

The moist evaporating dressing overcomes in large measure the disadvantages of the other forms. Capillary drainage of the excess of wound exudate or of seropurulent material is induced. Not only may antiseptics be used successfully in this type of dressing, but desirable chemical solutions may be safely and conveniently applied to stimulate flagging granulation growth.

There is a distinct need for improvement in our efforts to protect granulations during the change of dressings. With copious use of aqueous solutions or hydrogen peroxid and the most painstaking layer-by-layer removal of the gauze, there still remains a traumatized granulation bed. The mechanical difficulties to be overcome arise from two sources: First, the inspissation of the exudate in the layers of the gauze forms a glue-like mass that attaches the dressing to the wound margin and, in patches, to its surface. This air-dried crust-like mass as effectually resists the solvent action of solutions as would an ointment. Secondly, the rapidity of growth of the granulation-tissue permits its tiny buds to project through the meshes of the gauze, where they firmly attach themselves, with the result that on removal of the dressing the surface is left torn and bleeding. These conditions are most undesirable for the following reasons:

1. The raw and bloody surface more readily and firmly becomes adherent to the subsequent dressing.
2. The broken tissues offer new avenues for the spread of infection if present.
3. The epithelial margin of the wound is torn and often stripped off, thus seriously retarding its advance.
4. The removal of a dressing under such conditions is attended with great pain, and when repeated day after day often reduces the patient to a nervous wreck.
5. The fibrous tissue is greatly increased in certain areas by reason of the irritation of this repeated trauma. The surface being rough and irregular, the resultant scar is uneven and puckered instead of being smooth and elastic, which would be a condition much to be desired.

To obviate these serious objections to the usual dressing, I sought to develop a dressing material and technic that would insure a desired result without violating surgical principles. Obviously such a dressing must fulfil the following requirements:

1. It must not allow granulations to become attached in its substance.
2. It must permit drainage through it.
3. It must not conflict with any other form of dressing desired by the surgeon.
4. It must be capable of sterilization.
5. It must be adaptable to the conformation of the part.
6. It should be readily procurable.
7. It should be cheap.

The dressing as at present developed entirely conforms to these requirements. It consists of ordinary white mosquito-net which has been infiltrated with a mixture of paraffin and petrolatum, of each two parts, and stearin one part. This prepared net will permit the granulations to grow through its mesh, but not intimately into its threads, and removal is not attended by the usual accidents. Drainage through its interstices into the superimposed dressing is unobstructed and free.

Other elements of the dressing desired or habitually used by the surgeon do not conflict with its application. It was not designed to replace any one dressing, but to be used in conjunction with any other form. The materials may be sterilized before preparation or the preparation may precede the sterilization.

The technic of preparation and sterilization employed for my use is as follows: The mosquito-net is cut into pieces of suitable size for convenient handling. The paraffin, petrolatum and stearin in proper proportion are placed in a porcelain or metal bowl and heated to the boiling-point. In this heated liquid a double thickness of the net is immersed for three minutes. It is then removed, the excess of the mixture allowed to drain off and the surfaces separated to clear the meshes. The pieces are then folded and wrapped in oiled paper. Several of the packages are wrapped together in a towel or dressing-cap and sterilized in an autoclave.

The oiled paper prevents the absorption by the dressing-cap or towel of the mixture liquefied during sterilization. It is obvious that after immersion the steps of draining and separation must be accomplished rapidly, before the cooling is sufficient to congeal the mixture in the meshes so that they appear as tiny window-panes.

The dressing may be rendered antiseptic by the addition of phenol (carbolic acid) to the heated mixture to make it 0.5 per cent. strength.

When ready for application the net may be cut into such shapes or sizes as may be desired. It is nearly as flexible as the naked cloth and conforms readily to the surface of the part. The materials for its preparation are everywhere procurable, and all the component parts of the dressing are extremely cheap.

The technic of application and removal as used in our clinic is as follows: After the wound is cleansed a single or double layer of the prepared net is cut, of sufficient size and shape to cover the wound and allow ample margins to extend over the sound skin beyond the wound edge. The material is then fastened with adhesive strips or with tapes and the superimposed dressing of gauze applied and held in place with a roller bandage.

There is a distinct advantage in its use when it comes to the removal of the gauze, as there is no gluing of the dressing to the wound edge, and when hydrogen peroxid is applied here it readily finds its way beneath the entire dressing and the gauze may be lifted off *in toto*. The net is next carefully lifted from the surface.

The material is almost ideal for use in the primary dressing after skin grafting, as the grafts are held in place and do not adhere to the dressing so as to jeopardize them when the dressing is removed. It is my custom to cover the grafted wound with a double layer of the net and then lay on a few thicknesses of gauze moistened with normal salt water and hold in place with a gauze roller.

I am fully aware that the principle involved in the dressing is not new, as wire mesh has been used in like manner and there is on the market a rubber mesh for similar purposes. The former is for most obvious reasons clumsy and unmanageable and almost wholly undesirable, while the latter is not easily procurable and is prohibitive in price for the usual case that requires large quantities to be replaced daily.

This material has been in use for more than a year and has given me no cause to regret its addition to my armamentarium. When other dressings are made on patients accustomed to the use of this material, they ask that it be again made a part of their dressing. To such patients it gives more relief than any single step in their treatment.

667 North High Street.

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# DISTINCTION BETWEEN THE CORPUS LUTEUM OF OVULATION AND THE TRUE CORPUS LUTEUM OF PREGNANCY

## PRELIMINARY REPORT *

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The present investigation was conducted to determine the differences, if any, in size and chemical composition of the corpus luteum of ovulation and the true corpus luteum of pregnancy. The active principle of this gland has not been separated or identified, and it is, therefore, difficult to standardize the drug for medicinal purposes. Clinical evidence alone will in time lead to more definite knowledge regarding the true therapeutic value of the two varieties of the corpus luteum, but until the desiccated gland can be standardized chemically or physiologically, real progress cannot be expected. Such methods have been worked out in the case of the thyroids, the pituitary body and the adrenals, and their therapeutic value has naturally increased accordingly.

The ovaries from 700 non-pregnant and 689 pregnant cows were collected twice a week during the late fall months, when cattle as a rule are in excellent health and all stages of pregnancy plentifully in evidence. The total number of corpora lutea obtained from non-pregnant animals were 316, while those from pregnant cows totaled 692. In the pregnant cows one of the ovaries invariably showed a well-developed corpus luteum, and in three instances a single ovary contained two separate corpora lutea of equal size. Less than half of the non-pregnant cows possessed corpora lutea. The color and shape of the two varieties are identical and it would be impossible, therefore, to make any classification by external appearance only. A thorough examination of the uterus of each individual female animal was made in order to determine whether or not it was pregnant. In this investigation the glands from pregnant cows represent uniformly the entire period of gestation. Non-pregnant cows include an equal number of virgin animals (heifers) and primiparae or multiparae.

In examining the uteri from approximately 1,500 pregnant cows, partly for this investigation and partly for other purposes, some observations were made which may be of interest in this connection. In three instances the uteri were found to be strongly contracted and exceptionally hard to the touch. The largest of these uteri was completely filled with a dark brownish-red substance of a consistency resembling that of asphalt. The surface of the mass was slimy and in the process of being digested, while the interior was of a somewhat lighter color and consisted largely of muscle and skeletal parts.

The next largest of the uteri contained the entire skeletal parts of a fetus 3 to 4 months old, all the softer organic substances having been absorbed.

The third and smallest uterus contained a viscous yellow emulsion with a few fragments of disintegrated bones, hoofs, etc., and evidently represented the final stage of digestion. There was no sign of inflammation or putrefaction present in any of these uteri, and it is very evident that certain conditions necessitated this course of eliminating the fetus instead of complete abortion. The corpora lutea from the ovaries of these three cows were well developed and of normal size and appearance.

These observations demonstrate clearly that when the fetus dies during gestation the uterus itself is capable of disposing of the fetus by other means than simple abortion.

One corpus luteum, weighing 2.6 gm., from a non-pregnant cow, contained a hard yellowish substance. Chemical analysis showed this material to contain besides nitrogenous material and some calcium carbonate, large quantities of organic and inorganic phosphates, especially calcium phosphate. Cluster-shaped masses of a similar chemical composition have on several occasions been observed by me in the pituitary body of cattle. In such instances, the space between the anterior and the posterior lobes was enlarged and contained a yellowish, viscous fluid in which the clusters were suspended. These incidents are mentioned here as suggestive of the similarity in the apparent disturbing results produced by certain factors, both in the pituitary body and in the corpus luteum.

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* From the Research Laboratory in Organotherapeutics of Armour & Co.

The usual procedure for collecting the raw material was followed. The ovary containing the corpus luteum was removed from the animal shortly after slaughtering and while still containing the animal heat. The corpora lutea were then carefully dissected out and trimmed free from all adherent tissue, weighed and stored at freezing temperature until the entire lot had been collected. The glands were finely minced, dried on agate-ware trays at a temperature not exceeding 65 C. (149 F.) to constant weight and extracted in the Soxhlet apparatus with petroleum benzin. The loss of moisture and petroleum-benzin-soluble material were noted, and the desiccated fat-free substance powdered in a tube-mill to pass a 60-mesh sieve.

The total number of glands, the maximum, minimum and average weights, together with the moisture and petroleum-benzin-soluble material on the fresh glands and yield of desiccated material are given in the accompanying tabulation. On the desiccated fat-free glands the moisture, ash, total nitrogen and total phosphoric acid were determined and the figures calculated to dry basis for comparative purposes.

COMPARISON OF THE CORPORA LUTEA OF PREGNANCY AND OF OVULATION

| | Corpora Lutea from Pregnant Cows | Corpora Lutea from Non-Pregnant Cows |
|---|---|---|
| *Fresh Glands:* | | |
| Total number of corpora lutea | 692 | 316 |
| Average weight of corpora lutea, gm. | 4.8 | 4.1 |
| Maximum weight of corpora lutea, gm. | 18.2 | 10.0 |
| Minimum weight of corpora lutea, gm. | 0.9 | 0.8 |
| Moisture in fresh glands, per cent. | 77.0 | 78.9 |
| Petroleum-benzin-soluble, per cent. | 4.5 | 4.5 |
| *Desiccated Fat-Free Glands:* | | |
| Yield of desiccated fat-free glands, per cent. | 18.5 | 16.6 |
| Moisture, per cent. | 4.9 | 5.6 |
| Ash, per cent. | 5.33 | 6.0 |
| Total nitrogen, per cent. | 13.1 | 13.2 |
| Protein (N×6.25), per cent. | 81.88 | 82.5 |
| Phosphoric acid ($P_2O_5$), per cent. | 2.6 | 2.84 |
| Ash, dry basis, per cent. | 5.6 | 6.36 |
| Nitrogen, dry basis, per cent. | 13.77 | 13.88 |
| Protein, dry basis, per cent. | 86.06 | 86.75 |
| Phosphoric acid, dry basis, per cent. | 2.73 | 3.01 |

The tabulated results show that the corpus luteum of pregnancy is larger and shows a greater variation in size than the corpus luteum of ovulation.

When the figures on the dry basis are compared it will be noted that the nitrogen, and consequently the protein as well as the ash and total phosphoric acid contents, are slightly higher in glands from non-pregnant animals than in the true corpora lutea of pregnancy. It is, however, very doubtful if these slight differences are of any significance in judging or determining the therapeutic value of the two varieties of the corpus luteum. The active principle undoubtedly is present in the glands in organic combination and closely associated with the protein complex. Much more extensive work will be required, therefore, before this problem can be solved. It is the intention to continue investigation along these lines.

It may be mentioned here that tests for epinephrin were negative in both varieties, and that the glands did not give more than a very faint indication of the presence of iodin, as would naturally be present in ordinary animal tissues.

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# THE FREQUENCY OF PREGNANCY IN SLAUGHTER-HOUSE CATTLE IN RELATION TO THE SUPPLY OF CORPUS LUTEUM

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DETROIT

With the advent of corpus luteum to therapeutic importance, we are confronted with the question as to the superiority of extracts from corpus luteum from pregnant animals (corpus luteum verum) over extracts from non-pregnant animals (corpus luteum spurium). In his recent paper, Dannreuther[1] asserts that only corpora lutea vera bear the substances that are efficacious in gynecologic conditions, and he would explain some of the failures attending the use of this material on the grounds of the material not being obtained from pregnant animals.

There is no anatomic basis for the alleged difference in the two types; the structure is identical. As a rule, the corpus luteum of pregnancy attains a much larger size than the spurious type, but this does not serve to distinguish, for the corpus luteum in the non-pregnant has frequently been found to occupy four fifths of the entire ovary, and in pregnancy the corpus luteum is at times smaller than the average size for non-pregnancy. It has also been suggested that variations in color of corpora lutea stand in some fixed relation to pregnancy and non-pregnancy. The variations in color are merely differences in amounts of blood and lutein cells. Such variations in color usually stand in relation to the age of the corpus luteum. Just after ovulation the blood predominates and gives the dark red color to the corpus luteum; later the blood is absorbed and the yellow color is prominent from the predominance of the lutein cells. Whatever differences there may be, giving rise to greater efficacy from treatment with corpus luteum verum, they probably involve the chemical constituents rather than the structure of the two types of corpus luteum.

In connection with this confronting situation it seemed advisable to determine the frequency of pregnancy in cattle in the packing-houses, inasmuch as this is the source of supply of corpus luteum for pharmaceutical houses. The cattle slaughtered in the larger abattoirs are usually range cattle, the males and females being together at all times. The greater number of the cows of such herds are at some stage of pregnancy. An examination of the ovaries and uteri was made on forty cows appearing consecutively on the killing floors, but of two lots from different parts of the country. The cows so examined were all within the calf-bearing period, but of various ages. Of the forty cows, thirty-five yielded ovaries containing corpora lutea of such size as permitted dissecting out. Of these thirty-five, twenty-nine, or 83 per cent. (72 per cent. of the entire number), were pregnant. The corpora lutea from these pregnant cows were not uniformly large; many were identical in size and general appearance with those from the non-pregnant animals. Others were so large as to occupy five-sixths of the entire ovary.

From this examination it may be inferred that numerically 83 per cent. of corpus luteum is derived from pregnant cows. On account of the larger yield of corpus luteum from a pound unit of ovaries from pregnant animals than from the same unit of ovaries from non-pregnant animals, because of the larger average size of the former, the proportion by weight may run as high as 90 to 95 per cent. of corpus luteum verum.

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[1] Dannreuther, Walter T.: Corpus Luteum Organotherapy in Clinical Practice, The Journal A. M. A., Jan. 31, 1914, p. 359.

These figures may vary on an examination of a larger number of cattle, and furthermore, a seasonal variation may alter the percentage of pregnancy. If the foregoing figures at all approximate the general condition, all corpus luteum preparations are derived in a high percentage from pregnant cattle.

960 Waterloo Avenue.

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## A SIMPLIFICATION OF THE GRAM STAIN

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Having been impressed with the importance of the Gram stain as a routine laboratory procedure in bacteriologic examinations, and with the fact that, as ordinarily performed, it is time-consuming (involving from five to ten minutes), and comparatively laborious, I evolved the following simple technic, with the idea of eliminating the time element as far as possible without impairing its reliability:

Six wide-mouthed, 4-ounce bottles are numbered from 1 to 6 and labeled according to the following ingredients: Bottle 1 contains alcohol-saturated gentian-violet with distilled water in the proportion of 1 part stain to 3 parts water. Bottle 2 contains plain distilled water, Bottle 3 Gram's solution, Bottle 4 absolute *methyl* alcohol, Bottle 5 plain distilled water and Bottle 6 dilute Ziehl-Neelsen carbolfuchsin (about 1 : 10), whose speedy and penetrating staining properties are well known. The elements of the stain differ from the original technic in two essential details, namely, the employment of plain water for the gentian solution in place of anilin-water (this may be used nevertheless), and most important, the substitution of absolute *methyl* alcohol for *ethyl* alcohol, as the destaining agent. The reason for this substitution is that the former acts far more quickly and efficaciously, thereby featuring a desirable time-saving phase.

In performing the Gram stain, the slide is dipped into Bottle 1 for from five to ten seconds with constant stirring, is transferred to Bottle 2 for a few seconds, excess water being shaken off, then to Bottle 3 for five seconds with constant agitation of slide, thence to Bottle 4, where it takes but a few seconds to destain, especially if stirred, then transferred to Bottle 5 to wash (if it is not yet destained, the slide is returned to Bottle 4 again), and lastly to Bottle 6 for a couple of seconds. It is washed off in tap-water. The staining and counter-staining, it will be seen, have been performed in about one minute.

It will be noticed that after staining with gentian-violet the slide is washed in water. According to good authorities, washing the slide with water, before destaining, is permissible in the employment of the Gram stain. My reason for using Bottle 2 is that by washing off excess stain the precipitation of the Gram solution is minimized. Finally, the only frequent change necessary is that of the wash-water, since the gentian stain itself, I have found, does not deteriorate rapidly.

32 North State Street.

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# Therapeutics

## THE TUBERCULOSIS PROBLEM

(*Continued from page 1169*)

### TREATMENT OF SYMPTOMS

*Fever.*—Nothing tends to diminish the temperature more than the rest, quiet and fresh-air treatment already outlined. The patient who has high fever should not be given too much food at any time of day, even if the disease is tuberculosis; and most of what he does receive should be given during an afebrile period if possible. If he is suffering from acute tuberculosis, the nutrition should be much the same as for any other serious fever.

Sponging with hot water will often give these patients comfort, and, if they have profuse sweats, it keeps the skin clean. The frequency of such sponging will, of course, depend on the height of temperature and its continuance. Antipyretics are rarely indicated.

*Cough.*—The treatment of the cough depends on whether it is dry or moist, and whether expectoration is easy or difficult. If the cough is dry and hacking, much of it may be prevented by the will-power of the patient. It should not be forgotten that many dry, irritating coughs are due to a lingual tonsil or throat irritation. Soothing, alkaline gargles, non-irritating inhalations of simple steam or steam medicated with some non-irritant drug, as a small amount of a pine oil, will give relief. Many coughs of this kind are relieved by swabbing the lingual tonsil with boroglycerid. These dry, irritating coughs should be relieved without giving medicine by the stomach.

If there is considerable bronchitis with insufficient expectoration, or the cough is frequent without expectoration, no cough mixture is any more soothing or behaves better in the stomach than the following:

| | | Gm. or c.c. | | |
|---|---|---|---|---|
| ℞ | Codeinae sulphatis ....... | | 20 | gr. iv |
| | Ammonii chloridi ........ | 5 | | ʒ iss |
| | Syrupi acidi citrici........ | 25 | | fl℥ i |
| | Aquae.............q. s. ad | 100 | | fl℥ iv |

M. Sig.: A teaspoonful, in plenty of water, every two, three or four hours, as needed.

Heroin may be used in place of codein if desired, but we believe that codein is the best sedative preparation of the opium series to meet the indication. The action of all other expectorants is inferior to that of ammonium chlorid, and ammonium chlorid as prescribed above is not very disagreeable. The dose may be taken in Vichy or other sparkling water if desired. None of the multiple sweet, sickish, syrupy preparations offered by proprietary firms should be used in the bronchitis and catarrh of tuberculosis, or in any other kind of bronchitis. It is not necessary to cause nausea or vomiting because a patient has a cough. The success of some of these syrups or malt preparations in dry cough is due to the fact that they soothe the throat and lingual tonsil. Such irritation can be allayed without the patient swallowing a mixture. If the cough is loose, and if expectoration is profuse, the stimulating effect of ammonium chlorid and the sedative effect of codein are not needed, and terpin hydrate becomes the best drug to use, as an expectorant. To meet this indication of profuse bronchorrhea it will not ordinarily be necessary to combine it with either codein or heroin. It should never be given in solutions, as not enough of it to be of advantage will be dissolved in any solution. It may be given in tablet, powder or capsule, and the usual dose is 30 cg. (5 grains), given with plenty of water four or five times in twenty-four hours.

If there are cavities in the lungs, the patient should occasionally, by lying over the edge of the bed, allow gravity to aid him in expectorating the fluid and pus. Elevation of the foot of the bed is often of advantage. Sometimes inhalants containing creosote, oil of pine and perhaps benzoin are valuable. When there are large cavities which continue to fill up and cause septic fever, with the debility and loss of appetite that goes with it, or when there is danger of serious hemorrhage, it may be wise to inject air or nitrogen into the pleural cavity and compress the diseased lung. Such treatment should be given only in hospitals or sanatoriums, and then by an expert, as very unpleasant symptoms may occur; the heart may be unpleasantly pressed on, with a serious outcome. On the other hand, the treatment is sometimes very satisfactory.

*Pain.*—Pain in the chest is most frequently due to localized pleurisies, but it may be a neuralgia, or referred pain caused by disturbances of the more deeply seated nerves. Nothing is of more advantage in easing such pain than temporary strapping of the part of the chest affected. This is especially true of pain in the lower part of the thorax. Sometimes a hot-water bag will ease the pain; rarely a sedative may be indicated, but generally it is not needed. Mild counter-irritation by a liniment or ointment is sometimes advisable over these regions of pain; blisters are rarely expedient, though the thermocautery may be used. Dry cupping may give relief.

*Hemoptysis.*—Blood-tinged sputum or very slight pulmonary hemorrhages as evidenced by small clots or streaks of blood require no special treatment. Expectoration of pure blood, or coughing up a little blood repeatedly, requires attention. Such a patient should rest, and should undergo no exertion. The diet should be light, and hot soups or hot drinks should not be taken for a day or two, until the hemorrhage ceases. For this kind of bleeding little other treatment is necessary. If the bleeding is more severe, the patient should immediately be placed in a semirecumbent position, with loosened clothing and should be assured that there is no danger, as there rarely is danger from hemorrhage during all the early stages of pulmonary tuberculosis. In the late stages, with cavities, a large blood-vessel may rupture and the hemorrhage be fatal. It is well to have the patient lie on the side which is bleeding. This tends to prevent the blood from flowing into the bronchi of the other lung.

Besides reassuring the patient, it is often well, if there is a troublesome, irritating cough, to administer an hypnotic of morphin in just sufficient dose to quiet the irritability of the bronchial tubes and larynx so that the cough will be only sufficient for expectoration. (It is unnecessary to give a large dose which later will cause prostration; hence from 1/10 to 1/8 of a grain will be sufficient.)

The more rest the bleeding part has, the quicker will the blood coagulate in the bleeding vessels, but as above stated, mere capillary oozing should not be taken seriously. With a real hemorrhage from the lungs, the rest must be absolute; the patient should not even speak, at least not above a whisper. For some hours he should receive no food or drink. It is exceedingly doubtful if an ice-bag over the region of the bleeding is at all efficacious. The long-used remedy of eating salt may reflexly, by irritation, increase the vasomotor tension and thus may occasionally stop a hemorrhage, but most of the remedies used and said to be satisfactory in hemorrhage from the lungs are drugs that increase the blood-pressure more or less, which is undesirable. As the blood-pressure is lowered the hemorrhage will generally cease, usually without medication, so that whatever has been given has been supposed to be the cause of such cessation. If the patient becomes faint, blood-pressure is lowered, coagulation in the open vessel or vessels takes place, and the unpleasant symptom is cured by Nature's methods; therefore we should aid the natural cure of the condition by giving the patient nitroglycerin to lower the blood-pressure. Amyl nitrite is very frequently advised, but its action is so sudden, and for a few minutes so intensely disagreeable, that it is hardly advisable to use this powerful drug. Nitroglycerin on the tongue or hypodermatically will act as efficiently and almost as rapidly without causing the faintness and throbbing head that amyl nitrite will cause. It is a mistake to give ergot, caffein, suprarenal preparations, or digitalis, as these tend to increase the heart activity and raise the blood-pressure.

If there is a tendency to repeated, more or less serious hemorrhages, the daily administration of calcium in some form, either as lime-water, calcium lactate, or calcium glycerophosphate, and the feeding of gelatin are indicated. Also, if there seems to be a general tendency to the oozing of blood and to hemorrhage, injections of aseptic horse-serum is advisable; one or two subcutaneous injections will generally be sufficient. Inhalations of steam impregnated with some astringent such as tannic acid may be of value, if there is oozing of blood from the larger bronchial tubes, but such inhalations are of no value in bleeding from deeper portions of the lungs, as the astringent could not reach the region of trouble.

The patient should generally remain in bed for a week after a real hemorrhage. If the heart is impaired and some dilatation exists, if the expectorated blood is venous, and there are other signs of passive congestion of the lungs and of cardiac weakness, digitalis may be the best treatment for the condition; but for ordinary hemorrhages in pulmonary tuberculosis it is better, as above stated, to administer nitroglycerin in sufficient amount distinctly to lower the blood-pressure temporarily.

It has been repeatedly noted that constipation increases the tendency to hemorrhage in pulmonary tuberculosis, and that the higher blood-pressure caused by constipation is readily lowered by the administration of even simple laxatives. Because of this, it has been recommended[1] that when pulmonary hemorrhages occur, the patient should receive a dose of magnesium sulphate as well as nitroglycerin. Such immediate treatment of hemorrhage from the lungs seems hardly advisable. It might cause vomiting, and the mere increased exertion caused by bowel movements at this time, might cause more bleeding. The fact remains, however, that in pulmonary tuberculosis the patient should not be allowed to become very constipated.

If the hemoptysis occurs late in the disease and is dangerous in amount, the patient may quickly succumb, whatever the treatment adopted. The most efficient treatment of this serious condition is to place elastic bandages high up on the legs, or even all the extremities, to shut off their blood from the general circulation. It would be inadvisable, even if the hemorrhage was severe, to transfuse immediately, as anything that raises the blood-pressure will be likely to cause a return of the hemorrhage from the open vessel. Later, after the hemorrhage has ceased and sufficient time for thorough coagulation has passed, the extremities, one at a time, may be released and the blood contained in them allowed to return to the general circulation.

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[1] Burns, Newell Bly: The Treatment of Hemoptysis in Pulmonary Tuberculosis, THE JOURNAL A. M. A., Dec. 20, 1913, p. 2207.

Continued bleeding from the lungs (especially when cavities exist and a serious hemorrhage has taken place, or seems likely to occur) is one of the most important indications for the use of lung compression. Other indications, as previously suggested, are the presence of pus in a cavity in the lungs, and bronchiectasis. For either of these conditions lung compression is becoming more and more popular with specialists in tuberculosis. It is also wise, perhaps, to compress a lung when, in spite of some weeks of proper treatment, the disease continues to spread in it, the other lung being normal.

The gases that may be injected into the pleural cavity are nitrogen, oxygen and nitrogen, oxygen and air, or air and nitrogen. If only temporary compression is desirable, air, or a gas rich in oxygen seems indicated, as its absorption is more rapid. If a prolonged compression is desired, nitrogen should, perhaps, be used, as it is less readily absorbed, and therefore the compression is longer continued. A mixture of air and nitrogen is perhaps a good combination when a brief compression is desired, and being more rapidly absorbed than nitrogen, will allow a decision as to the ability of the patient to stand this compression before using the longer compression by nitrogen. It has also been urged that air compression is safer than that by nitrogen from the fact that if gas bubbles enter the circulation, the air bubble is more quickly absorbed than the nitrogen bubble. Good technic with proper instruments, however, should preclude such an accident.

If compression is once done and its continuance is desired, more gas should be injected before all of that previously injected is absorbed, as after an injection has once been made, and the pleural surfaces have come together, they become more or less adherent and it is difficult to inject the gas again into this pleural cavity.

*Night-Sweats.*—This debilitating symptom is very characteristic of tuberculosis, and may occur even without much afternoon or evening fever; generally, however, it follows such increase of temperature. Therefore, the rest and fresh-air treatment that prevents a rise in temperature will also ameliorate or prevent the night-sweats. If, however, typical cold night-sweats occur, nothing in the way of medication more successfully prevents them than atropin, 1/200 to 1/100 of a grain, given dry on the tongue at bedtime. The hydrotherapeutic measures already advised, that is, the warm water, and later cold water morning spongings are of value as preventives. If the patient is at rest and is getting no exercise, good massage followed by an alcohol rub is an excellent method of stimulating a more healthy circulation in the skin and muscles, and diminishing the tendency to profuse perspiration. The avoidance of constipation, a healthy circulation and good activity of the kidneys, all prevent night-sweats and the accumulation of toxins in the blood. If there is much circulatory weakness, several doses of strychnin sulphate a day, or digitalis, may also prevent night-sweats.

*Diarrhea.*—Simple diarrhea occurring in tuberculosis patients generally means either that the patient becomes chilled, or that the diet is incorrect. Correction of these conditions will soon stop such a diarrhea. Tuberculous diarrhea is a serious complication not only of pulmonary tuberculosis, but also of any other form. It often occurs in the last stage of the disease. Rest in bed and a carefully selected diet should be the treatment. Whether the diet consists of milk alone, or of a little meat and eggs with milk, should depend on the patient. Generally, vegetables, fruit and even much cereal should be temporarily withheld.

Bismuth subcarbonate may stop the diarrhea, but bismuth should not be long continued. Lime-water may be of benefit. If the kidneys are normal and there is no albuminuria, phenyl salicylate (salol) is good treatment. At times, one of the creosote combinations is valuable. The administration of opium in some form may be necessary before diarrhea can be checked, and in the last stages of tuberculosis diarrhea may not be preventable. Colon washing with warm physiologic saline solutions is sometimes markedly sedative and of value. The bowels should always be kept especially warm, and the patient with diarrhea should not be subjected to intense cold.

*Dyspnea.*—If the patient is in the last stages of pulmonary tuberculosis and must soon die, there is no excuse for not preventing the air-hunger, and morphin administered in properly selected, small doses, will often relieve the dyspnea. In the very last stages, if the patient cannot be out of doors to get an increased amount of oxygen, he may be given oxygen inhalations. But oxygen inhalations as a curative procedure are useless and may even do harm.

*The Pneumonic Type of Pulmonary Tuberculosis.*—Such a condition is likely to occur as a part of acute miliary tuberculosis, but it may develop in a lung as an acute exacerbation of a chronic tuberculosis. The disturbance may be ushered in with a chill, high, irregular temperature, frequent, short cough, considerable dyspnea, at first without physical signs of gross consolidation, but later showing in a part of a lobe, or even the whole lobe, the usual pneumonic signs, even with rusty sputum. The rusty expectoration soon disappears, however, and yellowish, greenish sputum, perhaps blood-streaked and loaded with tubercle bacilli, occurs. The prognosis is very serious, but the acute exacerbation may cease. The treatment is not dissimilar from that of an ordinary pneumonia.

*Laryngeal Tuberculosis.*—The prognosis of this condition has, up to recent years, been considered very bad indeed, but with more skilful treatment by throat specialists, with the added rest-cure and with tuberculin treatment, many such cases are aborted and the lives of the patients saved. The instances of tuberculosis of the larynx are rare in which, preceding or subsequent to the beginning of the laryngeal disease, some portion of the lungs will not be found affected.

The exact local treatment of a tuberculous larynx depends, of course, on the location of the ulcer or ulcers. If they are so situated that swallowing is very painful, anesthetizing sedatives must be used. Various preparations of silver, lactic acid and menthol are used by different clinicians to aid in healing the ulcers, but the tuberculin treatment, properly used, is probably always advisable.

*(To be continued)*

**Work for All.**—Preventable diseases are problems for all the people, and all the people should aid in finding an economic solution.

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SATURDAY, APRIL 18, 1914

## THE MECHANISM OF THE TRANSMISSION OF PLAGUE BY FLEAS

The epidemiologic importance of the flea in the transmission of the plague is now generally recognized. The Commission for the Investigation of the Plague in India indicated as the result of its work during 1906 and 1907 that, when control of the experimental conditions had once been obtained, transmission of plague from one animal to another could readily be brought about by fleas; and it further made the very important observation that only in the presence of fleas did an epizootic among rats or guinea-pigs ensue. Close contact with infected animals, including the devouring of infected carcasses, was occasionally followed by a case of plague, but no spread of the disease occurred. In a number of experiments animals allowed to remain in animal-houses in which epizootics had occurred and in plague-infected native quarters became infected; but no infection resulted if the simplest measures were taken to prevent the access of fleas — indicating that the infection was resident in the flea population.

Among the various methods suggested whereby the flea may transmit plague have been: ingestion of the infected fleas by animals; mechanical conveyance of the bacilli from the infected to the healthy animal by the proboscis of the flea; infection of the salivary glands of the flea, inoculation with the bacilli then occurring through the deposition of the saliva; infection of the feces of the flea, which, after being deposited on the skin of the host, may be injected by the pricker or rubbed into wounds made by the pricker. It is admitted that animals may be inoculated with plague by means of the dejecta from infected fleas. The hair of the flea-infested rat, especially in the areas from which the animal cannot dislodge the parasites, such as the back of the neck and root of the tail, is often sprinkled with the dried excrement of the fleas, and the animal is frequently seen scratching itself. Bacot and Martin,[1] who have been engaged at the Lister Institute for Preventive Medicine in London in researches on the mechanism of transmission of plague by fleas, state that they have long felt dubious as to whether the procedure just described was the only, or even the principal, method by which infection is conveyed. In comparison with the masses in the fleas' stomachs, the feces do not as a rule contain many bacilli, and soon dry up. These investigators also believe that bacilli which have grown in the stomach of the insect are not of a high degree of virulence. On behalf of the advisory committee appointed by the Secretary of State for India, the Royal Society, and the Lister Institute, the British investigators set out to ascertain whether or not the flea could infect during the act of sucking, and found that, under conditions precluding the possibility of infection by dejecta, two species of rat-fleas, *Xenopsylla cheopsis* and *Ceratophyllus fasciatus,* fed on septicemic blood, could transmit plague during the act of sucking, and that certain insects suffering from a temporary obstruction at the entrance of the stomach were responsible for most and probably for all of the infections obtained.

How complicated the conditions leading to the transmission of disease by insects may be is well illustrated by the foregoing facts. Only an expert entomologist can succeed in discovering the essential details of bodily structure and function on which the transference of the bacilli depends. Bacot and Martin found that in a proportion of infected fleas the bacilli developed to such an extent as to occlude the alimentary canal at the entrance to the stomach. The growth of the pest begins, apparently, in the intercellular recesses of the proventriculus, and is so abundant as to choke this organ and extend to the esophagus. Fleas in this condition are not prevented from sucking blood, as the pump is in the pharynx; but they only distend an already contaminated esophagus, so that some of the blood is forced back into the wound on the cessation of the pumping. Such fleas are persistent in their efforts to feed, and this renders them particularly dangerous. A flea suffering from obstruction does not necessarily perish, and in the course of some days its alimentary passage may again become pervious. It is, however, incapable for the time being of imbibing fresh fluid and is therefore in danger of drying up if the temperature is high and the degree of saturation of the atmosphere low. The British investigators are led to wonder whether this fact may not to some extent explain why epidemic plague in India is confined to the cooler and moister seasons, and particularly why in northern and central India the epidemics are abruptly terminated at the onset of the dry, hot weather.

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## DIFFERENTIATION OF GAUCHER'S DISEASE AND OTHER DISEASES OF THE SPLEEN

Among the large group of diseases attended by splenomegaly is a specific form presenting a definite clinical and pathologic picture and known as Gaucher's disease. Fourteen authentic cases have been reported, the first by Gaucher in 1884, after whom it has been suggested that the disease be named. N. E. Brill and F. S. Mandelbaum,[1] in a recent review of the literature, have brought together the chief facts concerning this condition, a brief summary of which may be helpful.

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[1] Bacot, A. W., and Martin, C. J.: Observations on the Mechanism of the Transmission of Plague by Fleas, Jour. Hyg., Plague Supplement III, 1914, p. 423.

It is a primary, chronic disease of unknown origin, characterized by progressive enlargement of the spleen, hence also called primary splenomegaly, and is followed by enlargement of the liver, brownish-yellow discoloration of the skin, conjunctival thickening, persistent leukopenia, a tendency to hemorrhages and the absence of marked discomfort. It is of familial occurrence and has been ascribed to the influence of an endogenous toxin, of an enzyme manufactured by the spleen, of infection by protozoa, tubercle bacilli, etc. It has been asserted also that it is a form of malignant disease, but evidence to establish any one of these possible factors as the cause is wanting.

A characteristic of the disease is the presence of peculiar large cells throughout the hemopoietic system. These cells are round or oval, from 20 to 40 microns in diameter, and contain from one to four or more nuclei. The spleen always retains its normal shape, but varies in size and weight according to the duration of the disease. Scattered throughout the pulp are the typical cells. Large round or irregularly shaped alveolar spaces, whose walls are formed by connective tissue lined by endothelium, displace the normal splenic structure. The liver is also enlarged proportionately to the duration of the disease and there is a great increase in the interlobular connective tissue, in the meshes of which are found numerous typical cells, similar to those seen in the spleen. In the lymph-glands the typical cells are found in the lymph-sinuses and between the pulp-cells. The bone-marrow is always red, usually soft, and the typical large cells are found either singly or in groups. There may be hypertrophy of the lymphadenoid tissue in the lower ileum and cecum; the intestinal, uterine, and thigh muscles have been found to contain pigment granules.

The disease is insidious in its onset and may be unattended by subjective symptoms. It usually begins early in life, appearing before 12 years of age in the majority of cases reported. Females are more frequently affected than males, and often more than one child in the same family is affected. In addition to the slowly progressive splenic enlargement causing protrusion, there is a peculiar brownish-yellow pigmentation of the skin of the face, neck and hands early in the disease, and a tendency to hemorrhages (epistaxis, bleeding from the gums and ecchymoses in the skin). A slowly growing brownish-yellow wedge-shaped thickening of the conjunctiva, affecting first the nasal and later the temporal sides, is another characteristic change. Persistent leukopenia is present. Early in the disease the red count is normal; later, however, a mild anemia of the chlorotic type develops. As the disease becomes more advanced, emaciation is a noticeable feature. The absence of any great pain is striking. The disease is slowly progressive in its course, the average duration of reported cases being 19.3 years; death is usually due to some intercurrent affection.

Splenic enlargement being a characteristic feature, Gaucher's disease must be differentiated from other conditions attended by splenomegaly, and especially those running a chronic course. Banti's disease and Gaucher's disease have many features in common, but the former is characterized by jaundice, pallor of the skin, ascites, less enlargement of the spleen and liver, absence of conjunctival lesions, and a shorter duration. The characteristic blood-picture of chronic splenomegalic acholuric jaundice with its normoblastic and megaloblastic crises, serves to differentiate this condition from Gaucher's disease. Hanot's disease is differentiated by the presence of jaundice, leukocytosis and a moderate enlargement of the liver and spleen. Hodgkin's disease associated with an enlarged spleen may occasion difficulty in diagnosis, but in this are seen the enlarged lymph-glands and the periods of fever. The definite blood-changes in pernicious anemia and the leukemias are quite diagnostic. In no one of these diseases is the enlargement of the liver and spleen as a rule so pronounced as in Gaucher's disease.

There is no specific treatment yet known. Splenectomy has given better result than anything else. Roentgen-ray treatment has been tried, and although the spleen is temporarily reduced in size, the disease is not checked. Arsenic has been the most important drug used, but it has very little influence on the progress of the disease, concerning the real nature of which we are in the dark.

## RURAL SCHOOL CONDITIONS IN THE UNITED STATES

One of the most important committees appointed by the Council on Health and Public Instruction of the American Medical Association is that on cooperation with the National Education Association. This committee, appointed two years ago, has been working with a similar committee appointed by the National Education Association on the subject of school hygiene. The first year of the committee's existence was devoted largely to a survey of the field and a consideration of what activities should be first undertaken. After careful discussion, the committee decided that the rural school was more in need of attention and assistance than the city school. Then the question arose as to the amount of available information concerning rural schools and schoolhouses. Surprising as it may seem, it was found that little was known of the actual conditions of rural schools in the different states. A preliminary survey was accordingly undertaken with a view to remedying this defect. Through the United States Bureau of Education, Professor Dressler of Nashville, Tenn., made a careful study of a large number of country school districts in the South. Special surveys in Connecticut, Vermont and New York, as well as general investigations which gathered statistics from every state in the Union, and special studies of rural conditions in Idaho, Massachusetts, Pennsylvania, New Jersey and Virginia, resulted in the accumulation of a large mass of information which is now being digested and drawn up in the form of a report. Professor Dressler's work will be made public through a special report issued by the United States Bureau of Education. While the work of the committee is only begun, enough has been learned to show that the sanitary condition of rural schools is not by any means so satisfactory as was generally supposed. In the New York *Times,* March 8, appeared a lengthy article based on a statement by Dr. T. D. Wood of Columbia University, chairman of the education committee.

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[1] Brill, N. E., and Mandelbaum, F. S.: Am. Jour. Med. Sc., December, 1913.

After describing the organization of the committee and the work which it has undertaken, Dr. Wood said: "We grew up with the notion that the schoolchildren in the country were bound to be much healthier than the children of the cities. Our parents always credited the little red schoolhouse for their excellent constitutions. Of late years, however, there has been a good deal of suspicion cast on that same little red schoolhouse. We have begun in this day of sanitation and medical inspection to have our doubts about those unqualified benefits."

Dr. Wood then gives a few specific instances in proof of the general proposition that the country schoolchild is from 15 per cent. to 20 per cent. more defective than the city child. In Pennsylvania, a study of 1,831 rural school districts was made and the health of the children in these districts was contrasted with the health of the schoolchildren in Harrisburg, Pittsburgh and Altoona. The percentage of defective children in Altoona was 69 per cent., in Pittsburgh 72.2 per cent., while in the rural districts studied, the aggregate of defective children amounted to 75 per cent. This means that three-fourths of the 294,427 country schoolchildren in Pennsylvania are in need of special care and treatment, while even in New York City only 72 per cent. of the children are at all defective.

The investigation of specific defects gives the same results. For instance, a comparison of the schoolchildren of Orange County, Virginia, with those of New York City, shows that with all of the surroundings and disadvantages of city life, the number of New York schoolchildren with lung trouble amounts to only a fraction of 1 per cent., while 3.7 per cent. of all the schoolchildren in Orange County, Virginia, suffer from some affection of the lungs. When the nutrition of rural schoolchildren was considered, it was supposed that here, of course, the country child would greatly surpass the child in the city, yet the average of malnutrition among the schoolchildren of New York City is 23.3 per cent., while that of rural schoolchildren in the districts investigated is 31.2 per cent. The same startling result is found when the figures for mental defectives are compared. Statistics from twenty-five cities and from rural districts in Pennsylvania, Massachusetts, New Jersey, Idaho and Virginia were compared, showing that the average of mental defects among city children was 0.2 per cent., while the average among rural schoolchildren was 0.8 per cent. Heart-disease is twice as prevalent among country children as among city schoolchildren. City schoolchildren have only 0.13 per cent. of curvature of the spine, while rural schoolchildren have 3.5 per cent. Ear troubles are five times and eye troubles are four times as frequent among country children. Adenoids are found in city schoolchildren in 8.5 per cent., but in the country the percentage is 21.5. The children in twenty-five cities showed an average percentage of enlarged tonsils of 8.8, while a similar number of country children showed over 30 per cent., and in Idaho the percentage ran up to 43.9.

Discussing the causes for these amazing and startling conditions, Dr. Wood finds that even in the slums, where the pinch of poverty is the sharpest, the food is better prepared than it is in the country, while the distance from dentists, oculists and clinical advantages accounts for the large number of defects of sight, hearing and teeth. Country houses are often drafty and overheated. The chances for house infection are greater and children are more exposed to cold, heat and dampness. The schoolhouses are often old and carelessly built and have insufficient equipment. In seven states there is no regulation of the sanitation of country schools. Heating is generally by means of a stove, and bad ventilation is usually the result. Seating accommodations are bad and general sanitary conditions often unspeakable. Frequently the only provisions for cleanliness are a pail of water, a dirty basin and a common towel. Drinking arrangements are bad and drinking-water often contaminated. Dr. Wood sums up the situation thus: "Now take into consideration the many other contingencies which the country child has to meet — physical labor, chores before he starts for school in the morning, a badly assorted breakfast, a long walk over bad roads — then subject him to direct infection, to bad water, and it is small wonder that he falls prey to a dozen maladies more readily than the city child."

The results of this survey of rural schools cannot fail to shatter some of our previously conceived views regarding rural conditions, and at the same time to point out the remedy. Not one state in five to-day provides for its country schoolchildren. In most of the cities some kind of supervision and care of schoolchildren is maintained, but rural schools have so far been left very largely to shift for themselves. "The welfare of our country," says Dr. Wood, "depends on no factor more indispensable, more vital, than the welfare of our rural life. Our finest crops are our children. The farmer does not see this truth. If he did, he would rise up and demand state protection for his youngsters — a more important matter than tariff regulation."

A few days after the publication of Dr. Wood's article in the *Times*, the New York *Evening Post*, in a long editorial, discussed his statement, which it characterized as of exceptional interest. "It is not often," says the *Post*, "that so striking a survey of statistical results in the domain of health bears such clear marks of trustworthiness and sobriety." After reviewing the article and Dr. Wood's conclusions, the *Post* indulges in some general optimistic reflections. It says: "Just as surely as the child of the city is more free from defects and ailments than the child of the country, just so surely is the city child of the present in better case than the city child of the past. If in spite of crowded homes, impure city air, lack of recreation facilities, in spite often of the poverty into which he is born and perhaps the vice with which he is environed, the city child makes a better showing than the country child, it is because of the multitude of benefits which have been bestowed on him by the progress of science and the steady advance of civic care, enlightenment and responsibility."

In the improved condition of the city child as contrasted with the country child, the *Post* finds reason for believing that the condition of the child in the country will be speedily corrected now that attention has been brought to the situation.

The work of the joint committee of the American Medical Association and the National Education Association has proved already of the utmost value and its activities have only begun. These two powerful organizations representing the organized professions of teaching and medicine can, during the next five years, effect a marked improvement in the health conditions of American schoolchildren.

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## THE ENTRANCE OF THE INTERNAL SECRETION OF THE PANCREAS INTO THE CIRCULATION

How the specific products of the ductless glands or so-called glands with internal secretion reach the circulation is by no means as yet definitely ascertained. Two possibilities are open: one, by the indirect route of the lymph-stream whereby they are ultimately discharged from the lymphatics into the blood; the other, by direct transference from the gland-cells to the blood itself. Inasmuch as we have not as yet learned how to test for many of the peculiar products of internal secretion in the blood or lymph, it has been necessary to find the evidence on the point under discussion in somewhat indirect ways. In the case of the adrenal bodies alone is it at present possible to detect their product, epinephrin, by reliable methods; and here the experiments point to the blood as the immediate recipient thereof.

Some years ago Biedl reported the frequent occurrence of glycosuria in animals in which, either by drainage to the exterior or by the obstruction of the thoracic duct, the lymph was prevented from reaching the general circulation. In apparent harmony with this are reported cases of chyluria, due to a rupture of the chyle-duct or cistern, combined with glycosuria. Such observations have readily suggested the conclusion that some secretory product of the pancreas essential for normal carbohydrate metabolism is carried into the blood-stream by way of the thoracic duct lymph-flow, and that when the latter is diverted or interfered with, glycosuria results as the most prominent symptom of the lack of the pancreatic product.

Here, then, was something that could be interpreted in favor of the lymphatic path for the internal secretion of the pancreatic gland. It is not the only interpretation possible, however. Nervous factors might also be drawn into the explanation of the glycosuria as the result of operative interferences. Carlson and Drennan[1] of the University of Chicago have further remarked that ligation of the thoracic duct may cause a temporary hyperglycosuria owing to injury of the liver by the edema from the back-pressure of the lymph; and the fistula experiments do not exclude a temporary glycosuria due to the operation and the anesthesia. Furthermore, Carlson and Drennan have carefully repeated, with negative results, Biedl's experiment in which a fistula of the thoracic duct was produced. By ligature of the jugular vein and anastomosis with the thoracic duct the lymph supposed to contain the pancreatic product was discharged into the external jugular, which was slit open and secured to the skin, allowing free escape of the lymph. The urine showed no sugar at any time.

Inasmuch as extirpation of the pancreas brings on diabetes in from six to ten hours, while complete elimination of the thoracic lymph for from thirty-two to thirty-three hours does not induce even mild glycosuria, it is evident that the internal secretion of the pancreas enters the blood direct and not via the thoracic duct.

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## ORGANISMS IN CONDENSED MILK

It may come as a distinct surprise to many persons to learn that the process of manufacturing condensed milk has not yet passed the stage of crudest empiricism. Certain general rules of technical procedure and manufacturing operations are followed as closely as the experience of factory superintendents or others in charge of the plants will permit; but the art of preparing a uniform product can scarcely be said as yet to rest on anything like a scientific basis. Regarding one feature of condensed milk, namely, its cytology and bacteriology, almost nothing was known until quite recently.

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[1] Carlson, A. J., and Drennan, F. M.: The Alleged Discharge of the Internal Secretion of the Pancreas into the Lymph, Proc. Soc. Exper. Biol. and Med., 1914, xi, 71.

Natural milk containing all of the original constituents of the mammary secretion is such a favorable medium for the development of bacteria that it must be thoroughly sterilized if it is to be preserved sweet for any length of time. Accordingly, it is said that the more liquid brands of preserved milk, which are found on the market in small numbers, are bacteriologically sterile. Condensed milk, on the other hand, represents a product that is concentrated to a quarter or more of its original volume, with an addition of sugar. Such a viscid, saccharine medium is relatively unfavorable to bacterial growth and will therefore keep for a long time even though not free from living organisms. Not only is it unnecessary from a commercial point of view to sterilize it, but the exposure to temperatures requisite for effective destruction of bacteria tends to deteriorate the condensed product in other ways. It becomes brownish and solid. Milk is usually condensed by evaporation under diminished pressure at a temperature considerably below the boiling-point of water.

A British investigator[1] at St. Bartholomew's Hospital in London, who has lately conducted an extensive examination of the fluid or semisolid products ordinarily termed "condensed milk," corroborates the experience of his predecessors in stating that he has never found milk of this type sterile. It is only fair to state that these milks are not as a rule sold as sterile any more than is market-milk even of the certified grade. The lack of sterility is no reason for condemning them; they must be judged by "the potential harmfulness of their bacterial count."

With regard to the cytology of the condensed milks obtained in London, Andrews[1] concludes that none of the samples ought to be condemned as containing pus. It is quite as possible for an abundance of body-cells to be present in such products as in market-milk. As a matter of fact, there appears to be a comparative paucity of cells in the cheap machine-skimmed condensed milks. The explanation of this unexpected improvement over what may be expected from inferior products is probably to be sought in the mode of preparation now very common both in this country and abroad. In passing through the centrifugal separators universally found in dairy establishments, not only is the cream removed, but a considerable deposit including much of the cellular content of the milk is withdrawn along with other débris and dirt.

Condensed milks may contain the types of bacteria commonly found in fresh milk — *Bacillus coli*, streptococci, a few staphylococci and *B. enteritidis sporogenes* — together with ordinary air contaminations such as *B. subtilis* and *mesentericus*. Even a good and popular brand of Swiss condensed milk yielded a moderate number of colonies of *Staphylococcus albus*. Thirty-one samples of cheaper brands yielded almost pure cultures of staphylococci, among which *Staphylococcus pyogenes aureus* was conspicuous. Inasmuch as these organisms can multiply in tins of condensed milk, the actual numbers present will depend largely on the age of the sample.

The proper attitude for the hygienist to take in the face of the facts may fairly be debated. Dr. Andrews reasonably argues that inasmuch as every one who takes fresh milk consumes in bulk the same bacteria found in small quantities in condensed milks without suffering any ill effect, these may be regarded as comparatively unobjectionable. But when the question of the sanitary significance of the almost pure cultures of staphylococci is raised, the subject cannot be passed over quite so lightly. Condensed milks are used largely among the poor, and hence their harmful consequences fall on the classes most susceptible. Quoting Andrews: "Even granting the blameless nature of the original milk, can we view without concern the circumstances which convert the tin of condensed product into an almost pure culture of pyogenic coccus? Is a culture of *Staphylococcus aureus* in condensed milk, numbering more than a quarter of a million cocci per cubic centimeter, a wholesome and desirable food for an adult, much less for an infant?" Whatever the answer to this may be, it seems likely that efficient pasteurization before the condensing process would prevent the presence of such organisms in the final product. Fortunately, they are absent from the majority of condensed milks, or present in only small numbers.

## THE BEHAVIOR OF LEVULOSE IN THE BODY

The sugar levulose is commonly associated, in the minds of those to whom the name has any definite import, with the extremely uncommon anomaly known as levulosuria, or with the use of this carbohydrate as a test for the functional efficiency of the liver. Alimentary levulosuria, in the sense in which it was first applied by Strauss, is supposed to be an expression of a decreased tolerance for levulose manifested in conditions such as cirrhosis of the liver, phosphorus poisoning, extreme stagnation of the bile, etc. A true spontaneous excretion of levulose alone, although known to occur, belongs to the rarities of clinical experience and has not been demonstrated to bear any relation to the familiar type of diabetes. In the latter disease levulose has been described as accompanying the eliminated glucose in very severe cases. This is, however, a condition quite different from the pure levulosuria just referred to.

It is surprising that levulose should so long have been comparatively neglected by both physiologist and physician. This sugar is not a stranger to the alimentary tract of man; on the contrary, it is a component of one of the commonest of foodstuffs — cane-sugar — and it likewise finds its way into the diet in the form of invert sugar (honey) and fruit-sugar. When not furnished preformed, it is speedily liberated from cane-sugar in the digestive tract by the activity of the inverting enzyme sucrase abundantly present in the small intestine.

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[1] Andrews, F. W.: The Cytology and Bacteriology of Condensed Milks, Jour. Path. and Bacteriol., 1913, xviii, 169

A familiar indication of the capacity of the organism to assimilate and utilize any particular type of sugar is found in its ability to function as a producer of glycogen. Glucose is, of course, par excellence, a source of the deposition of glycogen in the liver; but it is now well known that cane-sugar (sucrose), which yields a mixture of glucose and levulose (fructose) by alimentary digestion, and levulose itself, are likewise quite efficient in promoting the storage of glycogen. Despite the fact that levulose has a chemical structure somewhat unlike that of glucose, the glycogen from these two sugars is in every respect identical, so far as present knowledge permits a final conclusion in the matter. The carbohydrate stored in the liver is in every case a polysaccharid of glucose, into which it is readily converted on demand in the body.

Here lies a problem. How is the invariable conversion of levulose into glucose-yielding glycogen to be explained? The old-time physiologist might perchance be content to pass over the apparent anomaly here presented, in the little-comforting belief that all sugars are essentially alike. But the modern biochemist, trained to recognize stereochemical as well as ordinary structural differences among isomeric compounds, is not satisfied with such slipshod explanations. He realizes that structurally related, though not identical sugars like glucose and fructose — dextrose and levulose — readily experience molecular rearrangements and can become transformed into each other outside of the body under the influence of alkalies. The possibility of a similar conversion in the organism is thus established. One wonders, therefore, whether the daily intake of levulose, either free or in the potential form of cane-sugar, is converted directly into glycogen by the liver, or whether the immediate product is glucose which is then deposited as glycogen in the conventional way.

Perfusion of the isolated surviving liver with levulose-containing fluids has now shown that they experience a decrease of levulose with a simultaneous increase in the content of glucose.[1] This fact not only has a considerable theoretic interest, but also explains the clinical observations made in the past, which indicate the possibility of an increased output of glucose when levulose is fed to diabetic patients. It further substantiates the current view that all glycogen is essentially glucose-yielding in character, whatever the sugar antecedent from which it is derived. The possible mechanism of spontaneous levulosuria is likewise thereby elucidated as an upset in the intermediary conversion of levulose to glucose.

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[1] Isaac, S.: Ueber die Umwandlung von Lävulose in Dextrose in der künstlich durchströmten Leber, Ztschr. f. physiol. Chem., 1914, lxxxix, 78.

# Current Comment

## THE NON-FORMATION IN LEUKEMIA OF AGGLUTININS FOR TYPHOID BACILLI

We recently commented on the fact that in a very small percentage of cases of typhoid fever there seems to be no formation of agglutinins for typhoid bacilli.[1] In a case of chronic leukemia with typhoid fever Moreschi[2] failed to find any indications of agglutinin formation during the entire course of the fever. Taking his cue from this observation, he studied the effects of the intravenous injection of typhoid vaccine in eight leukemics. In two the leukemia was lymphatic, in six myelogenous. In normal persons and in patients with certain other diseases the quantity of vaccine injected led to the production of agglutinins in considerable quantities; but in the leukemic patients there was absolutely no response in six, while in two, both of whom were being treated with the Roentgen ray, with improvement, there was only a minimal response. It appears then that in leukemia the introduction of typhoid bacilli does not produce agglutinins. This may be accounted for by assuming that, owing to the excessive number of leukocytes, the antigen is destroyed or modified so rapidly that it has no chance to exercise its usual antigenic functions, or that in leukemia the power to produce antibodies is lost through changes in the hematopoietic organs; for there is good reason to believe that they are directly concerned in antibody production. The fact that the power to form agglutinins is lost in both forms of leukemia would seem to speak against the first assumption, because we do not regard the different kinds of leukocytes in lymphatic and myelogenous leukemia as equivalent. Moreschi made an additional observation in the course of this work, namely, that in the leukemics the injection of the typhoid vaccine caused no rise of temperature, whereas in the controls a slight fever occurred regularly. This raises the question whether or not febrile reaction is essential to the formation of antibodies. Further studies with other antigens are necessary to answer these questions. The fact that in leukemia the power to produce typhoid agglutinins is lost stimulates interest also in the question whether or not the function of forming antibodies is lost or modified in other diseases.

## ABOLITION OF SPECIAL TAX ON PHYSICIANS

After many years of effort the physicians of Virginia have finally won in the fight to abolish the professional tax levied on doctors in that state. A bill doing away with the collection of this tax after the present year passed both houses of the legislature and recently became a law without the governor's signature. Virginia was one of five states to impose such a tax, the others being Delaware, Louisiana, Georgia and North Carolina. This law has been in force in Virginia for many years. Just why it was enacted in the beginning is difficult to say. Its repeal was opposed only on the ground of loss of revenue to the state of $43,000, the amount paid by physicians under this law. Commenting on the passage of the repeal bill, the Richmond *Leader* said:

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[1] Inagglutinable Typhoid Bacilli, Current Comment, THE JOURNAL A. M. A., April 4, 1914, p. 1099.

[2] Moreschi: Ztschr. f. Immunitätsforsch., 1914, xxi, 410.

> Virginia has demanded services of physicians and has then taxed them for performing it. We have required our physicians to attend emergency cases regardless of compensation. We have ordered them to report promptly the cases of communicable disease that appeared in their practice. We have given them responsible duties in enforcing the vital statistics law, and in return for this — the most extensive public service demanded of any private citizen — we have coolly exacted of the physician a heavy annual tax. A more anomalous situation and one more discreditable to the state could hardly be imagined.

The Roanoke *News* says:

> Roanoke and the rest of Virginia will have to stagger along without it [the professional tax]. Roanoke has eighty-seven doctors, and the income derived from them by the city is approximately $1,500. The license is $15 where a doctor has practiced here two years or under, and $25 for two years and over. . . . While we may groan at losing that $1,500 and wonder where the contraction of Roanoke's income is going to stop, few of us will grieve that the doctor's vocation is to be held as a service to mankind rather than as a business strictly speaking.

Regardless of the conditions which gave rise to such a special burden, there are to-day no reasons which justify the levying of a special occupational tax on physicians, unless a similar tax is levied on all other occupations and professions. The physicians of Virginia are to be congratulated on the successful outcome of their long struggle against injustice. Their example should stimulate the physicians of the other four states to secure the repeal of this unfair tax.

## PARALYSIS AGITANS AND THE PARATHYROIDS

The statement has been made that just as forty years ago medicine was dominated by pathologic anatomy and twenty years ago by bacteriology, so to-day is the era of the ductless gland with its internal secretion. The pendulum of opinion tends at times to swing too far, first in one direction and then in the opposite. We are reminded of this by the alleged relationship between the parathyroid glands and paralysis agitans. Some of the symptoms of the latter resemble, it is true, the peculiar muscular behavior noted in animals after removal of the parathyroids. The interrelation appears to go no farther than this analogy, however, when the factors involved are critically analyzed. The reports as to the therapeutic effects of parathyroid medication in paralysis agitans are too conflicting to contribute anything of value to the controversy regarding the etiology of the disease. Examination of the parathyroid glands removed at necropsy from cases of paralysis agitans has revealed no characteristic deviation from the normal. Equally negative is the chemical evidence presented by Dr. Greenwald[1] of the Montefiore Home in New York City. He has previously shown that after parathyroidectomy in dogs there is a marked diminution in the excretion of phosphorus.[2] This persists until tetany appears and even longer. At the same time the blood and serum show an increase in the content of phosphorus above the normal, which can readily be demonstrated before marked tetany has developed. This increased phosphorus content consists almost entirely of those compounds of phosphorus not soluble in acetone, *alcohol or ether. Greenwald has argued that if the* symptoms of paralysis agitans are due to parathyroid insufficiency one might, in view of the preceding experimental records, expect to find that the amount of acid-soluble phosphorus in the serum of patients suffering from the disease is greater than in that of other individuals. His observations show that this is not the case; and accordingly they do not support the suggestions of Lundberg[3] and of Berkeley[4] that parathyroid insufficiency plays a rôle in the etiology of paralysis agitans. We need scarcely add that negative results of this character do not necessarily vitiate entirely the usefulness of a hypothesis.

## PUBLIC EDUCATION BY UNIVERSITIES

A striking illustration of the changing conditions in educational ideas may be found in the growing appreciation on the part of leading universities of their responsibility to the public. In former generations a university was regarded as a thing apart, and a college professor was looked on, not only by the humorous paragraphers of the newspapers, but also by the mass of people, as a man living in a world of ideas, without any connection with practical affairs. To-day our leading universities are recognizing not only the opportunity, but also the duty of making available their knowledge for the benefit of the masses. This tendency is highly commendable, especially in the field of public health and prevention of disease. The Harvard Medical School has a standing committee on public lectures which arranges each year for a course of Sunday afternoon talks by members of the faculty. These talks are open to the general public and are on topics of general interest. For instance, last year the course of twenty lectures included such topics as "Preventive Medicine in Relation to Industrial and International Concord," "The Care and Feeding of Young Children," "What the State Board of Health is Doing to Protect the Health of Its Citizens," "The Dangerous Effects of Patent Medicines" and "The Preservation of the Natural Teeth." This year's course includes talks on "Rational Baby Feeding," "Bodily Effects of Rage and Fear," "Spectacles and Eye-Glasses, Their Use and Abuse," and other subjects of practical interest. The lectures given in the past have proved of value and so popular that they are now being issued in little pocket-sized volumes at popular prices under the title of "Harvard Health Talks." In Minnesota the daily press is cooperating in the same kind of work. A series of articles on disease and its prevention by Dr. E. P. Lyon, dean of the University of Minnesota Medical School, recently appeared in the Minneapolis *Journal*. The University of Missouri is one of the few state universities that have recognized the growing tendency by the organization of a distinct department on public health. A series of bulletins for public reading and distribution are being issued. The five so far completed are on "Bacteria and Disease," "The Prevention of Typhoid Fever," "The Prevention of Contagious Diseases in Schoolchildren," "Resuscitation" and "The Relation of Sight and Hearing to Early School Life." Each of these universities has apparently worked out its plans in accordance with the needs of its own particular field. In Boston, popular Sunday afternoon lectures; in Minnesota, newspaper articles, and in Missouri, pamphlets on specific subjects seem to meet existing conditions. The significant fact, however, is that our universities are recognizing their responsibilities to the public and are making serious, intelligent and practical efforts to meet them.

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[1] Greenwald, I.: The Supposed Relation Between Paralysis Agitans and Insufficiency of the Parathyroid Glands, Am. Jour. Med. Sc., 1914, cxlvii, 225.

[2] Greenwald, I.: Am. Jour. Physiol., 1911, xxviii, 103; Jour. Biol. Chem., 1913, xiv, 363.

[3] Lundberg: Deutsch. Ztschr. f. Nervenh., 1904, xxvii, 217.

[4] Berkeley: Med. News, 1905, lxxxvii, 1060.

### THE PRODUCTION OF CIRRHOSIS OF THE LIVER AND CHRONIC NEPHRITIS BY REPEATED PROTEIN INTOXICATION

Longcope observed that sometimes in the course of chronic nephritis acute attacks of fever occur with edema, urticaria and eosinophilia—attacks that resemble serum disease. This led him to wonder if some cases of nephritis might not depend on a condition resembling anaphylaxis or protein intoxication. In order to determine the effect of repeated protein intoxications on the structure of the organs and tissues, he gave several injections of small quantities of horse-serum and egg-white to dogs, cats, rabbits and guinea-pigs previously sensitized to these proteins. Marked cellular injuries resulted with inflammatory reactions of a subacute and chronic nature, which were observed in the heart-muscle and kidneys of all the animals and in the liver of the cats and dogs injected intravenously. The changes in the kidneys were those of a well-marked nephritis: degeneration and necrosis of the cells in Henle's loops, less marked elsewhere, with extensive round-cell infiltration and formation of connective tissue as well as acute and chronic alterations in the glomeruli. Well-marked necrosis developed in the liver, mostly in the outer portions of the lobules with chronic inflammatory processes, resembling the portal type of cirrhosis. After intraperitoneal injections chronic inflammatory changes developed in the peritoneum.[1] These results are highly interesting because they suggest the possibility that in certain instances at least degenerative and cirrhotic processes in man may result from protein intoxication. We might expect this to occur especially in persons who are susceptible to certain foods, notably egg-white, and who on that account would be subjected to repeated intoxications. Certainly the possibility of such a genesis of some cases of chronic nephritis and cirrhosis of the liver merit thorough consideration. In this connection it is of interest to note that Bürger and Dold[2] find that bacterioproteins and also homologous protein, after being altered in various ways, attract leukocytes, especially after having been treated with unheated serum. This indicates that the fluids of the body may so act on proteins as to produce leukotactic products.

### A COMPARISON OF LEUKOCYTES AND LYMPHOCYTES

Aside from the genetic and morphologic distinctions between the usual leukocytes and lymphocytes found in the body, other evidences of functional differences are not wanting. The two types of cells are endowed in quite unlike measure with an outfit of enzymes. Although proteolytic ferments have frequently been described for the polymorphonuclear leukocytes, and an important rôle has been assigned to them in relation to certain pathologic processes, such enzymes seem to be lacking in the lymphocytes. The latter are also described as being deficient in oxidases which are easily demonstrated in the leukocyte accumulations represented by pus. These facts have suggested the possibility of finding some more specific chemical differentiation between the two types of colorless blood-cells. Iron is a constituent of many cells of the organism aside from the red blood-cells in which it is found in relative abundance. This element has often been looked on as one of the carriers of the fermentative properties of cells, and particularly the function of oxidation. In view of the apparent dissimilarity of the leukocyte and lymphocyte in respect to this very feature, as exhibited in the relative abundance of oxidase, it seemed not unlikely at one time that the two types of cells would be found to carry a decidedly unlike content of iron. According to the recent investigations of Saneyoshi[1] in the medical policlinic at Freiburg in Germany, there is, however, no essential difference in this respect. The leukocytes are no richer in iron than their companion lymphocytes. It will be necessary, therefore, to seek other evidences for the chemical basis of the differentiations between them in physiologic processes.

### AN ANTIDOTE FOR "BICHLORID" POISONING

In a recent issue of a prominent medical journal, the statement is made that mercuric chlorid poisoning can be treated by the use of sodium phosphate with excess of sodium bicarbonate. Thus, editorially, the journal says: "This solution, it is claimed, instantly converts the bichlorid to the mild chlorid, which can be removed by a dose of castor oil. It is very necessary that the sodium phosphate shall be chemically pure." Attention should therefore again be called to the fact that the names "sodium phosphate" and "sodium phosphite" are so similar that a serious error can be made by the misprinting or misinterpretation of a single letter. Sodium phosphite has been suggested as an antidote to mercuric chlorid because it acts as a reducing agent to convert mercuric chlorid into calomel — mercurous chlorid — while the phosphite is changed to phosphate. Sodium phosphate will have no such action on mercuric chlorid because it is already as highly oxidized as possible.

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[1] Longcope: Jour. Exper. Med., 1913, xviii, 678; Tr. Assn. Am. Phys., 1913, xxvii, 497.

[2] Bürger and Dold: Ztschr. f. Immunitätsforsch., 1914, xxi, 378.

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[1] Saneyoshi, S.: Vergleichende Untersuchungen über den Eisengehalt von Leukocyten und Lymphocyten, Biochem. Ztschr., 1914, lix, 339.

# Medical News

## DISTRICT OF COLUMBIA

**Personal.**—Dr. Cressy L. Wilbur, chief statistician of the Vital Statistics Bureau of the Census, has been granted a leave of absence in order that he may assume the directorship of vital statistics in the New York State Department of Health.——Health Officer William C. Woodward gave the seventh and last lecture of the community health series at the Y. M. C. A. Building, Washington, April 3, on "Why a Health Department?"

## ILLINOIS

**New Officers.**—Warren County Medical Society at Monmouth, April 3: president, Dr. Philo B. Conant, Roseville; secretary-treasurer, Dr. Harold M. Camp, Monmouth.

**New Secretary of State Board of Health.**—The State Board of Health at its meeting April 15, elected Dr. C. St. Clair Drake, secretary, vice Dr. James A. Egan, deceased. Dr. Drake is a graduate of the Chicago Homeopathic Medical College in 1890, and has been an official of the Department of Health of Chicago for twenty years and is at present assistant chief of the Bureau of Vital Statistics.

**Personal.**—Dr Rawson J. Pickard has returned to Maywood after nearly five years of work in the government hospitals in the Canal Zone.——Dr. John R. Tobin, Elgin, has been appointed chief surgeon of the Aurora, Elgin and Chicago Railway, and Dr. Frederick C. Schurmeier, Elgin, assistant chief surgeon.——Dr. Robert Clements entertained the Danville Physicians' Club in his offices, April 2.——Dr. Arthur W. Swift, Belvidere, who was operated on at Rochester, Minn., March 31, is reported to be doing well.——Drs. William C. Robert and Harry E. Kerch have been appointed directors of the Kane County Antituberculosis Society.

### Chicago

**Baby Week.**—Four thousand persons interested in baby welfare will make a thorough canvas of the city next week for funds needed to aid the Infant Welfare Society.

**Physicians Organize Glee Club.**—The Chicago Medical Society has followed the lead of Baltimore and organized the Chicago Medical Society Glee Club, for which recruits are solicited. Dr. Arthur C. Kleutgen, 903 West Garfield Boulevard, is medical director and soloist of the club.

**Ladies' Night at Physicians' Club.**—The Physicians' Club of Chicago has provided an attractive program for its annual ladies' night, May 1. After the dinner a lecture will be given by Miss Helen Keller and her teacher, Mrs. Macy, on "The Heart and the Hand," or "the Right Use of Our Senses."

**Personal.**—Dr. Liston H. Montgomery has been appointed local surgeon of the Pere Marquette.——Dr. Frank J. Novak, who was operated on recently for hernia, has recovered and resumed practice.——Dr. and Mrs. A. Gaebler sail for Europe April 25.——Dr. Alexander A. Goldsmith fractured his right fore-arm while cranking his automobile.

**Chicago a Healthier City.**—The report of the Commission of Health for the first quarter of 1914 shows a material falling off in the number of cases of and deaths from communicable diseases. During the quarter there were 7,773 fewer cases of measles and 113 fewer deaths; 3,813 fewer cases of scarlet fever, and 353 fewer deaths; 926 fewer cases of diphtheria and 225 fewer deaths; 25 fewer cases of small-pox, and no deaths. There were, however, 1,423 more cases of whooping-cough; 259 more cases of chicken-pox; 251 more cases of mumps, and 56 more cases of typhoid fever. During the quarter there were 9,756 deaths from all causes, equivalent to an annual death-rate of 16.5 per 1,000.

## INDIANA

**Contract for Sanatorium.**—The contract for the construction of the St. Joseph's County Tuberculosis Sanatorium, South Bend, was let March 30 for $7,725.

**New Officers.**—Twelfth District Medical Society at Fort Wayne, April 8: president, Dr. James W. McKinney, Bluffton (reelected); secretary-treasurer, Dr. Miles F. Porter, Jr., Fort Wayne.

**Intern Examinations.**—The Indianapolis City Health Board announces that it will hold examinations for applicants for appointments as interns in the City Hospital and City Dispensary, at the office of the Board of Health, April 23 and 24.

**Personal.**—Drs. W. H. Willis and Walter R. Cleveland have been reelected directors of the Evansville Anti-Tuberculosis Society.——Dr. Herman G. Morgan, city sanitary officer, Indianapolis, was presented by the office force of the Board of Health with a Shriner's pin and a Masonic watch charm, April 4.——At the Huntington County Medical Society meeting, April 1, resolutions were adopted congratulating Dr. William C. Chaffee, Huntington, on reaching his seventy-ninth birthday anniversary.

## IOWA

**Clean-Up Bulletin.**—The first of a series of bulletins on spring clean-up work has been issued by Dr. L. S. Husted, health officer of Muscatine. It is chiefly concerned with the pernicious house-fly.

**Personal.**—Dr. William A. Benadom, Davenport, was seriously injured by the overturning of his automobile, April 6. ——Dr. Charles W. Burt has been elected mayor of Valley Junction.——Dr. Walter L. Bierring, Des Moines, has been reappointed president of the State Board of Health and Medical Examiners for a term of five years.——Dr. and Mrs. George H. Stanger, Boone, have returned from Cuba.——Dr. Martha Welpton, Des Moines, who has been ill in St. Luke's Hospital, Chicago, has recovered and returned home.——Dr. Louis F. Cummings, Hopkinton, was seriously injured by the overturning of his automobile, recently.

**Special Bulletin, Iowa State Board of Health.**—From the quarterly bulletins of the Iowa State Board of Health for the last three quarters of 1913 a special bulletin has been compiled and issued in the interest of the embalmers of Iowa. It contains the laws of the state concerning embalmers, requirements for license, preparation of bodies for shipment and burial, requirements of undertakers in the way of permits for burial, handling of bodies of persons who have died of quarantinable diseases, methods of disinfection and manner of preventing the dissemination of infection, a description of the infectious and contagious diseases, information with reference to reporting venereal diseases and the laws with reference to vital statistics and blanks on which death certificates and burial permits are to be made. The bulletin also contains a list of the licensed embalmers of Iowa with their addresses. Numerous illustrations of methods of disease prevention are also included.

## LOUISIANA

**Religion and Medicine.**—April 19, the day before the session of the Louisiana State Medical Society, a symposium will be held in the Tulane Theater on "Religion: Its Relation to Hygiene and Medicine."

**Conference of Health Officers.**—A conference of state health officers will be held April 20 in New Orleans, at which local problems and those relating to joint efforts of the local health officers and the state department will be discussed.

**Health Status of the Negro.**—The Louisiana State Board of Health has called a conference of health and educational leaders throughout the state, that agreement may be reached concerning immediate practical measures for the betterment of the negro. This meeting will be held in New Orleans, April 24-25.

**Personal.**—Dr. O. P. Dailey, first assistant at the East Louisiana Hospital for the Insane, Jackson, has resigned, and April 2 his associates and the employees of the institution presented him with a gold Masonic fob, suitably inscribed. ——In the case of Dr. E. M. Ellis, Crowley, who was sued for $35,500 by a Greek restaurant keeper for alleged malpractice, the case was decided March 20 in favor of Dr. Ellis, and an additional judgment was given him for professional fees.

## MARYLAND

**Personal.**—Dr. Thomas W. Koon has been elected mayor of Cumberland.——Dr. J. McPherson Scott, secretary to the State Board of Medical Examiners, has been elected mayor of Hagerstown for the third time.——Dr. Paul Wegefarth, formerly assistant to Dr. Harvey Cushing at the Peter Bent Brigham Hospital of Boston, has returned to Baltimore where he will be one of the resident physicians at the Church Home and Infirmary.——Dr. J. Charles G. Macgill, who has been confined to his home at Catonsville with an attack of influenza, is improving.

**Measles Ward at Sydenham.**—Plans for a building for measles at Sydenham have been laid before the board of awards. The plans call for a one-story structure with provision for fifteen to twenty patients, the cost to be about $25,000. The new building and the edifices now standing at Sydenham can be made to fit into the scheme for a general hospital to be provided out of the $750,000 loan authorized by the legislature. There are about 12 acres of land at

Sydenham and this is declared to be sufficient for a large hospital such as it is proposed to establish.

**Legislative Enactments and Appropriations.**—The bill requiring the state lunacy commission to remove all criminal insane from the penal institutions has been passed by the legislature and signed by the governor. The following appropriations were made to the state hospitals for the insane and feebleminded. The maintenance appropriations for the next two years are as follows: Springfield State Hospital $160,000, $160,000; Spring Grove State Hospital, $79,000, $86,000; Crownsville State Hospital, $60,000, $60,000; Eastern Shore State Hospital, $30,000, $30,000; Rosewood State Training School, $115,000, $125,000.

The bond issue of $418,000, authorizing new buildings at the five state institutions, is divided as follows: Springfield State Hospital, $110,000; Spring Grove State Hospital, $80,000; Crownsville State Hospital, $100,000; Eastern Shore State Hospital, $100,000; Rosewood State Training School, $28,000. A special appropriation of $2,500 a year was made to the lunacy commission for the purpose of prevention and after-care in connection with the Mental Hygiene Committee.

**Doctors Discuss Press.**—Medical and newspaper men met April 7 to discuss a plan for closer cooperation between the medical profession and the newspapers of the city. Physicians gave their views of what they called the exploiting of the ills of private patients, of garbling the accounts of private operations, of distorting and sensationalizing important but intricate discoveries and inventions, of getting back-door news from hospitals and of giving undue publicity to the deeds of certain physicians. It was suggested that the unmeasured power of the newspapers as public educators had been almost wholly neglected by the physicians and that means should be brought about to utilize this power for the welfare of the people of the city. An agreement was approved that a definite method of cooperation between the two professions be formed and a central authority established to assist actively the newspapers in getting accurate and educative information before the public.

## MASSACHUSETTS

**Small-Pox in Boston.**—The Spanish steamer *Inez*, arriving from Barcelona, April 1, was held in quarantine on account of a case of small-pox in the crew.

**College Physician at Harvard.**—Freshmen at Harvard University hereafter will be under the supervision of a physician, will undergo periodical physical examinations, and will receive advice as to the best means of retaining their physical vigor.

**Cooperative Suburban Board of Health.**—The towns of Wellesley, Belmont, Framingham, Weston, Needham, Melrose, Winchester and Canton have completed the first year of their health work under a cooperative system. Service has been rendered by the Cooperative Suburban Board of Health, with laboratories and headquarters at Wellesley Hills, under the administrative management of Robert N. Hoyt. The total cost of the service for the eight towns during the year was $6,300, and has been so successful and economical that the service is to be continued.

**Personal.**—Dr. John E. McGrath, Hudson, has been appointed medical examiner of Middlesex County, vice Dr. Eugene G. Hoitt, removed from the state; Dr. Edward J. Mahoney, Springfield, medical examiner for the second Hampton district, vice Dr. Simon J. Russell, Springfield, resigned, and Dr. John J. Kelly, Marlboro, associate physician of Middlesex County, vice Dr. John E. McGrath, Hudson, promoted. ——Drs. Hugh Williams, Hugh Cabot, Fred B. Lund and Harry H. Germain have been appointed consulting surgeons; George Van Ness Dearborn has been appointed consulting physician, and Dr. William E. Chenery, rhinologist and laryngologist of the Forsythe Dental Infirmary for Children, Boston.——Dr. John J. Dowling has been appointed a trustee of the Boston City Hospital.——Dr. William J. Brinkley of the Haymarket Square Relief Hospital, has been granted a six-months' leave of absence to study hospitals abroad, and sailed from Boston, April 9.——Dr. Hugh Cabot has become one of the owners of the Boston *Journal*.——Dr. Howard Hamblen has been appointed a school committeeman of Maynard.

## NEW YORK

**New Editor of Bulletin.**—Dr. Fred M. Meader has been elected editor of the *Bulletin* of the Syracuse Bureau of Health, the first number of which is to appear this month.

**Medical Examination of Employees.**—The Public Health Committee of the Chamber of Commerce of Rochester voted, March 21, to ask the trustees of the chamber to urge manufacturers to adopt the medical inspection of employees in their factories.

**New Club House.**—Physicians of Rochester are planning to purchase, for about $25,000, a building to be used as a club house. The associations which are fostering this enterprise are the Monroe County Medical Society, the Rochester Pathological Society, the Rochester Academy of Medicine, the Rochester Hospital Medical Society, the Rochester Homeopathic Medical Society, the Rochester Hahnemann Medical Society and the Blackwell Medical Society. Dr. William B. Jones is president, and Dr. David B. Jewett secretary of the temporary executive committee, which is in charge of the matter on hand.

## New York City

**Typhus Suspects Escape Quarantine.**—Fourteen steerage passengers said to have been exposed to typhus infection on the *Cameronia*, are said to have been accidentally released from quarantine without inspection, and to have left for the interior.

**Two More Small-Pox Cases.**—Two more cases of small-pox have recently come to light, making in all six cases that have occurred in this city during the past month. The finding of these last two cases had led Dr. Sigismund S. Goldwater to reiterate his warnings urging vaccination on all.

**In Memory of Dr. Le Fevre.**—The students and members of the faculty of New York University and Bellevue Medical College held a memorial service in honor of Dr. Egbert Le Fevre on April 5. Addresses were made by Drs. George Alexander, Elmer Ellsworth Brown, Abram A. Smith, George D. Stewart, Edward D. Fisher and Prof. John A. Mandel. Resolutions were passed in recognition of the high esteem in which Dr. Le Fevre was held.

**Prominent Foreign Surgeons Arrive.**—The *Imperator* which arrived April 9, had on board forty-nine prominent surgeons who came to attend the International Congress on Surgery in this city. Among these were Professor Sonnenburg, Berlin; Prof. Ludwig Rehn, Frankfort-on-the-Main; Prof. H. Kümmel, Hamburg; Dr. Hans Schlange, Hannover; Dr. Bergmann, the surgeon of Emperor Frederick; Dr. Charles H. A. Fairbank, London; Dr. Oscar Bloch, Copenhagen, and Dr. Maurice Robineau, Paris.

**Club Entertains Physicians.**—The University Club of Brooklyn set apart the evening of April 11 as "Physicians' Night." Many prominent members of the profession in New York and Brooklyn were present as well as a number of visiting surgeons from abroad and from other cities. The guests of the evening included Dr. Charles H. Mayo and Dr. William J. Mayo, Rochester, Minn.; Dr. Alexis Carrel, New York; Prof. Henri Hartmann, Paris, France; Dr. John B. Murphy, Chicago; Dr. Lewis S. Pilcher, Dr. J. Richard Kevin, Brooklyn, and the Rev. Nehemiah Boynton.

**Personal.**—Dr. Joseph M. Creamer of Riverside Hospital, Dr. William T. Jenkins of Willard Parker Hospital and Dr. Cyrus J. Strong have resigned from the Board of Health. Dr. Jenkins was formerly health commissioner and health officer of the port.——Dr. Haven Emerson has been appointed sanitary superintendent and deputy health commissioner at a salary of $5,000 per annum.——Dr. Milton Schaie, first assistant surgeon at the Montefiore Home Country Sanatorium, Bedford Hills, has resigned, to become medical director of the Jewish Home for Chronic Invalids and Consumptives, St. Louis, Mo.

**The Cancer Campaign.**—The American Society for the Control of Cancer held a meeting at the New York Academy of Medicine on the evening of April 10, which was presided over by Dr. Clement Cleveland, the vice-president of the organization. The meeting was addressed by Dr. Cleveland, Dr. William J. Mayo of Rochester, Minn., and Dr. Francis Carter Wood of the Crocker Research Laboratory. The society held a third meeting on the morning of April 11. It is announced that $7,000 has been raised to carry on the work but that $3,000 more is needed to meet the requirements of the campaign up to Jan. 1, 1915. The society has a membership of 2,000.

**Results of Tuberculosis Campaign.**—The committee on prevention of tuberculosis of the Charity Organization Society has issued a report of its work during the past three years. This report regards as its most important and far reaching work the campaign to secure additional tuberculosis hospitals. It is stated that there are only 2,051 hospital beds, though the records of the Health Department show some 40,000 known consumptives, large numbers of whom are in need of immediate hospital treatment. Of the 11.000 patients treated in the city's tuberculosis hospitals each year 45 per cent. have to be kept waiting before they gain admission. As a result of this campaign $2,000,000 was appropriated by the city for the erection of additional hospitals, which will add 1,300 additional beds. The committee has done much work among schoolchildren, establishing fresh-air classes and providing better ventilation. Other features of the campaign have been lectures, moving picture demonstrations, the traveling tuberculosis exhibit and the wide distribution of instructive leaflets and pamphlets. It is further stated that the death rate of Greater New York from pulmonary tuberculosis has fallen from 2.25 in 1898 to 1.66 in 1912.

**Advise Change in Autopsy Law.**—The hospital investigating committee of the Board of Estimate in a report just made to the Board of Aldermen recommends that the state law regarding autopsies be changed so as to enable hospitals to perform a much larger percentage of autopsies than is permitted at present. The proposed law would allow hospitals to perform autopsies in cases in which there is no objection within forty-eight hours from husband, wife or next of kin. Bellevue Hospital has built and equipped the finest pathologic building in the United States and is provided with every modern facility for performing autopsies and following up such autopsies by experimental work, but it is practically unable to use this plant because of the inability to secure permission to perform autopsies. It was shown that during the period of investigation 47.7 per cent. of the autopsies did not confirm the clinical diagnosis. The conclusions drawn from this large percentage of errors in clinical diagnosis were not that the findings of the attending physicians of Bellevue were carelessly made, but rather that too great reliance was placed on the inexperienced house physician and interns and also that the current knowledge necessary to make clinical diagnoses, which should approach accuracy, was insufficient.

## OHIO

**Health Conservation Problems.**—March 30, Dr. E. F. McCampbell, secretary State Board of Health, addressed the members of the Commercial Club of Springfield, on the subject of "Health Conservation Problems in Ohio."

**Public Health Exhibit.**—The tentative schedule of the Public Health Exhibit of the Ohio State Board of Health is as follows: Salem, April 6-11; Alliance, April 15-21; Bellaire, April 25-May 1; Columbus, May 5-7; London, May 11-16; Springfield, May 20-26; Xenia, June 1-6, and Hamilton, June 10-16.

**Personal.**—Dr. William B. Van Note, Lima, sails for Europe May 1.——Dr. and Mrs. Ralph A. Bunn, Oakwood, Dayton, sailed from New York for the Mediterranean, April 4.——Dr. Edward J. Wheatley, National Military Home, has assumed his new duties as surgeon of the Soldiers' Home Hospital, Danville, Ill.

**Prohibition of Common Drinking Cup and Common Towel.**—The State Board of Health, at a meeting held in Cincinnati, March 19, amended its regulations regarding the use of the common drinking cup and common towel, to include a number of places, such as telephone exchanges, telegraph offices, etc., which had not been previously mentioned.

**Clinicians Elect Officers.**—At the annual meeting of the Ohio State Clinical Association, held in Toledo, April 6 and 7, the following officers were elected: president, Dr. Charles C. Bonifield, Cincinnati; vice-presidents, Drs. Frank Winders, Columbus, and Mark D. Stevenson, Akron; secretary-treasurer, Dr. Frank E. Fee, Cincinnati; and trustee, Dr. George M. Todd, Toledo.

**Medical Fakes and Fakers.**—The Department of Physiology, Ohio State University, is presenting a series of lectures open to all students of the university, on Thursday afternoons. The lecturer on April 2, was Dr. George H. Matson, Columbus, secretary of the State Board of Medical Registration, and his topic was "Medical Fakes and Fakers." The lecturer praised the campaign of exposure of medical fakes and fakers.

**Municipal Clinics in Dayton.**—Health Commissioner Light announces that free dispensaries for the worthy poor will be conducted by the health department in the Cappel Building, under the supervision of Miss Elizabeth Fox; Mondays, Wednesdays and Fridays baby clinics will be held; Tuesdays and Thursdays general clinics and on Saturdays a tuberculosis clinic. In addition to these, daily clinics for diseases of the eye, ear, nose and throat will be held at St. Elizabeth's Hospital, and on Tuesdays, Thursdays and Saturdays at the Miami Valley Hospital.

**Why Not a Public Health Exhibit?**—The Sandusky Board of Health recently requested the city council to put aside a certain sum of money for a Public Health Exhibit. This the council refused to do, giving as an excuse the fact that the duties of a board of health were not educational, and that the board would be better occupied in cleaning up the city than in attempting to place an exhibit before the people. A number of physicians and the Board of Health of Sandusky were so much impressed by the Public Health Exhibit of the State Board of Health that they decided to continue the campaign of education along public health lines by means of a local exhibit. It was planned to have the engineer in charge of the filtration plant show how the system operates, and give a practical demonstration of the examination of water, and many other features of great local interest and importance were to be added to the exhibit. It is to be regretted that an intelligent campaign of this character should meet with failure.

**Typhoid Outbreak at Circleville.**—An outbreak of typhoid fever in Circleville during the months of January and February, 1914, attracted considerable attention. In all forty-five cases were reported and two deaths occurred. An epidemiologic investigation showed that the infection was due to a temporary pollution of the water-supply in all but a few cases, which were due to contact. The water-supply is drawn from an infiltration gallery in the valley of Big Darby Creek, and laboratory examinations have shown it to be free from pollution on many occasions. Investigation by the Division of Sanitary Engineering of the Ohio State Board of Health revealed the fact that a connection to the distributing system of the city existed, by means of which the American Strawboard Company was furnished city water for fire protection. The regular water-supply of this company is drawn from the Scioto River, which receives all sewage from the city of Columbus at a point twenty-five miles above the intake and is otherwise seriously polluted. The polluted river water was able to leak through the check valve separating the two supplies, and contaminated the general water-supply. Such contamination can reach only those mains supplying the southern part of Circleville, and it was to this part of the city that the outbreak was confined, only one case being reported from any other part of the city. Steps have been taken to prevent the recurrence of such an event in the future and its occurrence should prove a warning to other municipalities in which such a condition of affairs is allowed to exist. An outbreak of typhoid fever in Springfield in 1911 was traced to a similar connection.

## PENNSYLVANIA

**Medical Scholarship Founded by Women's Clubs.**—Two medical scholarships for women, to be known as The Congress of Women's Clubs of Western Pennsylvania Medical Scholarships, have been endowed by gifts and pledges, and have been formally presented to the University of Pittsburgh.

**Lecture on Typhus Fever.**—Surg. John F. Anderson, U. S. P. H. S., director of the Hygienic Laboratory, Washington, D. C., lectured before the Biologic Society of the University of Pittsburgh recently on "Our Present Knowledge of the Etiology and Distribution of Typhus Fever."

**Floating Hospital.**—The Pittsburgh Academy of Science and Art has announced plans for a floating hospital for tuberculosis patients, which will have a full crew of doctors and nurses. It will be used especially for patients awaiting admission to the state and county hospitals. Considerable money has been subscribed, and moving picture shows throughout Allegheny County are to be asked to set aside a day when pictures showing ravages of the white plague will be shown, the proceeds to go toward the maintenance of the hospital.

### Philadelphia

**Personal.**—Dr. Arthur Dare has just returned from a four months' trip to the Orient.——Dr. Samuel S. Woody has been reappointed chief resident physician to the Philadelphia Hospital for Contagious Diseases.

**Medical Lecture.**—The annual address of the Philadelphia Pathological Society will be delivered at the College of Physicians, Twenty-Second and Chestnut Streets, by Dr. Richard P. Strong of Harvard University, on "Bubonic Plague."

**Memorial Meeting.**—At a meeting of the College of Physicians of Philadelphia held April 1, Dr. Edward B. Meigs read a memoir of the late Dr. Arthur V. Meigs, and Dr. Henry W. Stelwagon a memorial of the late Dr. Louis A. Dühring.

**Medical Examiners Meet.**—The Field Medical Examiners of Philadelphia life insurance companies held their monthly meeting and dinner at the Hotel Walton, April 7. Addresses were made by Drs. Elmer B. Kyle, Thomas H. Bradford, Foster K. Collins and Ernest W. Kelsey.

**Physicians Honor Railroad Officials.**—The Medical Club of Philadelphia gave a reception April 17, in honor of Mr. A. T. Dice, vice-president and general manager of the Philadelphia & Reading Railway; Mr. S. C. Long, general manager of the Pennsylvania Railroad, and Mr. George H. Campbell, assistant to the president of the Baltimore & Ohio Railroad.

**Medallion Presented to Hospital.**—A bronze medallion of the late Dr. John S. Musser was unveiled in the University Hospital April 15. The medallion is in low relief, and was designed by Dr. R. Tait McKenzie. The medallion, the gift of the Social Service Department, was placed in the wall of the corridor to the left of the entrance. Dr. George E. deSchweinitz made the presentation address.

**German Measles Epidemic.**—German measles, which last year afflicted more than ten thousand children in this city, is again epidemic. Last month 1,791 cases were reported to the Bureau of Health, an increase from 854 in February, and 414 in January. The Department of Health will make vigorous efforts to check the spread of the disease by requiring as strict a quarantine as the law provides.

**Examinations.**—The Civil Service Commission will hold an examination for the position of chief resident physician, Philadelphia General Hospital; salary, $4,000 per year. No provisional appointment will be made to this position.——The Civil Service Commission will hold an examination April 30, 1914, for assistant chief medical inspector, Bureau of Health, Department of Health and Charities; salary, $2,400 per year.

**Medical College Society Banquet.**—The James M. Anders Medical Society of the Medico-Chirurgical College held its twenty-first annual banquet April 3, at which also was celebrated the twenty-fifth anniversary of Professor Anders' association with the college. The annual address was made by Prof. Hobert A. Hare of the Jefferson Medical College. Among other speakers were Drs. David Riesman, Ernest LaPlace, and James M. Anders.

**City's Baby-Saving Plans.**—On March 30 a meeting was held in the mayor's office and plans were proposed for the organization of the Division of Child Hygiene. Of the 125 organizations in this city interested in children's welfare, 80 have been enrolled as members of the Babies' Welfare Association in Philadelphia. This association intends not only to prevent duplication of the various lines of work, but will enable the different organizations to formulate a program of action to be carried out in Philadelphia during the year, thus to work out the welfare of babies from a standpoint of civic betterment. Each institution will know just what other institutions are doing, thus eliminating wasted efforts.

**Dealers Oppose Pasteurization of Milk.**—A meeting was held in City Hall, April 2, by the Board of Health and the milk men of the city to confer on the revised rules on the sale of milk. President John A. Vogelson of the Health Board conducted the meeting. The small dealers are fighting the rule for the pasteurization of milk, and read letters from physicians in favor of raw milk. The new rules, which go into effect July 1, also provide that all persons handling milk shall be subject to examination by the Health Department to detect anyone having a communicable disease. Every can of milk should have a label stating its contents and from what farm it came. The score card system will also be provided.

## TENNESSEE

**Personal.**—Drs. James H. Atlee and James A. Smith, Chattanooga, have gone abroad.——The offices of Drs. W. M. Wilson and James E. Adkisson in the W. J. Birdsong Building, Medina, were destroyed by fire recently.——Dr. Benjamin D. Caldwell, Milan, while making a professional call was struck and seriously injured by a freight train which demolished his buggy and threw him on the tracks.

**New Hospital Staff.**—The [illegible] Baroness Erlanger Hospital, [illegible] mer staff, Dr. John S. Dye; [illegible] B. Anderson, John B. Has [illegible] medical department—Drs. Thomas E. Abernathy, Martin A. Meacham, and William E. Anderson; obstetrical department—Dr. Julius C. Brooks; genito-urinary department—Dr. G. Victor Williams; eye, ear, nose and throat department—Drs. Benjamin F. Travis and J. McChesney Hogshead; children's disease department—Dr. Jose M. Selden, and superintendent of the hospital, Dr. W. E. Raht.

**State Society Meeting.**—The eighty-first annual meeting of the Tennessee State Medical Association was held in Memphis, April 8-9. The following officers were elected: president, Dr. Samuel M. Miller, Knoxville; vice-presidents, for middle Tennessee, Dr. Hilliard Wood, Nashville, east Tennessee, Dr. John M. Clack, Rockwood, west Tennessee, Dr. Samuel T. Parker, Lexington; secretary, Dr. Olin West, Nashville; treasurer, Dr. Charles N. Cowden, Nashville; trustee, Dr. George E. Pettey, Memphis; delegates to the American Medical Association, Drs. Perry Bromberg, Nashville, and Edward C. Ellett, Memphis; alternates, Drs. Andrew F. Richards, Sparta, and William T. Black, Memphis; councillors, first district, Dr. Claude P. Fox, Greenville; second district, Dr. Andrew F. Richards, Sparta; fifth district, Dr. Frank B. Reago, Shelbyville; seventh district, Dr. Luther E. Wheat, Brick Church, and ninth district, Dr. Tazwell B. Wingo, Martin.

## GENERAL

**Pediatric Society Meeting.**—The next meeting of the American Pediatric Society will be held at the Red Lion Inn, Stockbridge, Mass., May 26-28.

**Health Conference.**—A health conference of city officials of every municipality of northern Indiana and southern Michigan convened at South Bend, Ind., April 15.

**Railroad Hygiene.**—The Pennsylvania System has made more rigid the rules governing the inspection of the dining, buffet and kitchen cars of that line, as well as the examinations for communicable diseases of its employees in that branch of service.

**Child Welfare Convention.**—The third International Child Welfare Convention is to be held in Washington, D. C., May 22-27, under the auspices of the National Congress of Mothers and the Parent-Teacher Association. Among the topics to be discussed will be child welfare as regards home, school, church and state.

**Surgeons Elect Officers.**—At the annual meeting of the American Surgical Association in New York City, April 8-11, Rochester, Minn., was selected as the next place of meeting, and the following officers were elected: president, Dr. George E. Armstrong, Montreal; vice-presidents, Drs. Lewis S. Pilcher, Brooklyn, and Frank E. Bunts, Cleveland; secretary, Dr. Robert G. Le Conte, Philadelphia; treasurer, Dr. Charles L. Gibson, New York City; recorder, Dr. Archibald Maclaren, St. Paul; councilors, Drs. William J. Mayo, Rochester, Minn., Arpad G. Gerster, New York City, and Charles A. Powers, Denver.

**Appointments in Canal Zone.**—Passed Asst. Surg. Marshall Guthrie, U. S. P. H. S., has been appointed chief quarantine officer for the Panama Canal Zone.——Lieut.-Col. George D. Deshon, M.C., U. S. Army, detailed as superintendent of the Ancon hospitals, has been given permission to report for duty on May 1, instead of April 1, as originally ordered.——Senior Surg. Joseph H. White, U. S. P. H. S., now stationed in New Orleans, has been given a leave of absence for one year. He will take up for the Rockefeller Commission, the important work of the eradication of hookworm throughout Central and South America.——Dr. D. W. Herman has been appointed medical officer of the Canal Zone, and has arrived at Colon.

**Bequests and Donations.**—The following bequests and donations have recently been announced:

For the establishment of a Home for Convalescents and Incurables at Dorchester, Mass., 40 acres of land and $50,000 by the will of Frank Wood, Boston, Mass.

Mount Sinai Hospital, New York City, $100,000; St. Luke's, German, Manhattan Eye and Ear and Lincoln hospitals each $25,000, by the will of Benjamin Altman.

Columbia Research Work on the causes and cure of cancer, $5,000; Home for Aged and Infirm Hebrews, $2,000; St. Rose's Home for Incurable Cancer, Montefiore Home and Mount Sinai Alumnae Association, each $1,000, by the will of Leonidas A. von Praag.

McGill University, Montreal, $20,000, and Samaritan Hospital for Women, $1,000, by the will of Miss Mary A. Cramp, Montreal.

Mount Sinai Hospital, New York City, New York Society for the Ruptured and Crippled; Home for Aged and Infirm Hebrews; Montefiore Home and four other philanthropic institutions a share in an estate of $87,729, by the will of Lewis Sampson Levy

## FOREIGN

**Renvers Endowment.**—The friends and pupils of the late professor of internal medicine at the University of Berlin, R. von Renvers, have presented the municipal authorities of Berlin with an endowment fund of $4,225 (17,000 marks) as a memorial.

**International Congress for Neurology and Psychiatry.**—Dr. L. Schnyder of Berne, Monbijoustrasse 31, states that all announcements of articles designed for this congress must be in his hands by July 1. The meeting is to be held at Berne, Switzerland, Sept. 7-12, 1914.

**More Plague in Havana.**—It is reported that four more cases of bubonic plague have developed in the infected zone in Havana. The sanitary department has now depopulated three entire blocks of the zone, removing those individuals who are unprovided for to the Trisconia Quarantine Station, to be under observation for a period of ten days.

## CANADA

**Health Officers to Meet.**—The third annual conference of the Ontario Health Officers' Association will be held in Convocation Hall, University of Toronto, May 7 and 8.

**Board Will Issue Bulletins.**—The Victoria (B. C.) Board of Health will commence the issuing of quarterly bulletins. They will be distributed to each household throughout the city. The health department is to receive wider powers.

**Manitoba Medical College News.**—The Manitoba Medical College will begin to issue a medical college journal next August.——The new addition to the Manitoba Medical College which has just been opened cost $50,000. The total value of the present college is estimated at $125,000 and the site at $200,000.

**Hospital News.**—The King George Isolation Municipal Hospital is now in working order in Winnipeg. It cost $400,000. There are 176 beds and the accommodation can be extended to 200 in case of need. Dr. A. B. Alexander is superintendent with Dr. Alvin T Mathers as assistant. The city will erect a residence for the superintendent.——The Hon. Dr. Young of British Columbia has introduced a bill into the legislature to amend the Act of the Royal Jubilee Hospital, Victoria. It will accord to medical practitioners the right to sit on the board of governors, which under the present act is specifically denied.——At Onoway, near Edmonton, Alta., a country hospital has been established to be known as the St. Barnabas Nursing Home.——On its last year's operations the Toronto General Hospital had a deficit of $70,000.——Dr. J. Alexander Hutchison has been appointed senior surgeon of the Montreal General Hospital in succession to Dr. Francis J. Shepherd, resigned. The hospital faces a deficit of $67,014 as reported at the ninety second annual meeting held recently.

**Personal.**—Dr. Walter A. Wilkins, Montreal, has left for Germany.——Dr. William R. Jaffray of the provincial board of health of Ontario at Kingston, has been appointed assistant physician at the Post-Graduate Hospital, New York.——Dr. S. M. Asselstine, Marlbank, Ont., has been appointed lec- [illegible] d therapeutics at Queen's University, [illegible] MacLennan, Toronto, will sail for Europe the last week in April.——Dr. J. J. Middleton has returned to Toronto after six months' graduate work in London, Edinburgh and Dublin.——Dr. W. E. Deeks, formerly lecturer in zoology and demonstrator of anatomy in McGill University, Montreal, but for several years chief physician in the Ancon Hospital at Panama, is on his way to Europe for a holiday.——Dr. Walter Bapty, Victoria, B. C., has been appointed secretary to the British Columbia Board of Health, Dr. Charles J. Fagan having retired.——Dr. Frank F. Wesbrook, Vancouver, president of the University of British Columbia, has returned from Europe and the United States where he has been securing a strong staff for the university. The announcement of the appointments is to be made in the immediate future.

## LONDON LETTER

*London, March 27, 1914.*

### Inauguration of an Ambulance System in London

Strange as it may appear, London has been without any centralized ambulance system up to the present. In cases of accident the police remove injured persons to the hospital by means of hand ambulances. The subject has been under the consideration of the London County Council for some time, but motives of economy have prevented the adoption of any scheme. In the months of September, October and November, 1913, there were 4,434 accidents and 1,309 cases of sudden illness in which the assistance of the police was required for conveying the patients to the hospital. This does not take into account patients conveyed by the police to local doctors, of whom no statistics are available, or accidents in factories and workshops, which are estimated to be from eight to ten thousand a year. The council has now decided on an ambulance system sufficient to provide for 27,770 cases of accidents and illness a year. The service will be available for cases of accident and illness in the streets and for accidents in factories and private premises, but not for the conveyance of sick persons from private houses. The scheme will be under the control of the fire department, subject to the advice on medical questions of the health officer. Six stations will be created, three north and three south of the Thames. The motive power will be gasoline, as electrically propelled ambulances would not be suitable where the neighborhood is hilly or the distance is long. After consideration of various types of stretcher appliances, the collapsible doolee as used in Glasgow—canvas supported by removable poles—was adopted. Each ambulance will also carry a plain board stretcher for cases such as fractured pelvis in which a collapsible stretcher might cause harm. In the ambulance itself there will be a spring mattress covered with air beds. The annual expenditure for maintenance is estimated at $50,000.

### The Falling Birth-Rate in Scotland

Scotland exhibits the same phenomenon of a falling birth-rate as has been reported from time to time in The Journal for England. The rate for 1913 was 25.5 per thousand, the lowest yet recorded, being 28 per cent. less than the rate for 1876. The excess of births over deaths was 47,476, being 2,903 less than in the previous year, 4,487 less than the mean of the natural increases of the preceding five years, and 6,199 less than the mean of those of the preceding ten years.

### Surgeon-General Gorgas in London

Surgeon-General Gorgas has returned to this country from South Africa, where he went at the invitation of the Johannesburg Chamber of Mines and the British South Africa Company, accompanied by Dr. Darling (chief of the Research Laboratory of the Panama Canal Commission) and Major Noble (general inspector of the Sanitary Department of the Panama Canal Commission), to examine the sanitary conditions in the mines in view of the prevalence of pneumonia and tuberculosis and to inspect the valleys of southern Rhodesia. At the Royal Society of Medicine, Gorgas lectured on the measures adopted in combating malaria and yellow fever in Panama. He and his colleagues were also entertained at a complimentary dinner over which presided Sir Thomas Barlow, president of the Royal College of Physicians, and which was attended by a distinguished company of physicians and others, including the Archbishop of Canterbury, the Lord Chancellor and the American ambassador.

### Cooperation of the Government with the American Health Commission

The government is cooperating with the American commission appointed to institute a campaign against ankylostomiasis and other tropical diseases. Mr. Wickliffe Rose, the director of the commission, visited several of our West Indian islands at the end of last year, and has made satisfactory arrangements with the local authorities there for a similar campaign. For the last week Mr. Rose has been in London conferring with a special committee appointed by the colonial office which, it is proposed, will work in conjunction with the American commission. Mr. Rose, accompanied by Dr. Sandwith of the London School of Tropical Medicine, has left London for Egypt, Ceylon, the Federated Malay States and the Philippine Islands, where he hopes to carry out similar work. The London School of Tropical Medicine, when asked to furnish a man to accompany Mr. Rose on his mission, suggested Dr. Sandwith, its senior physician and lecturer, whose experience of this disease is unrivaled. It is also probable that future workers in this new field, as far as the British Empire is concerned, will have to undergo a special course of training at the London School of Tropical Medicine. At present Dr. R. T. Leiper of the London School of Tropical Medicine is in China studying another tropical disease, bilharziasis, and it is understood that he will also investigate the ravages of ankylostomiasis among the coolies on the tea estates. Dr. Leiper has the active assistance of the admiralty and the colonial office in his research work.

### Royal Commission on Venereal Diseases

At the twenty-second meeting of the Royal Commission on Venereal Diseases, evidence was given by Mr. D'Arcy Power, surgeon and lecturer on surgery at St. Bartholomew's Hospital, and one of the representatives before the Commission of the Royal College of Surgeons and the Royal Society of Medicine. He looked on gonorrhea as the more serious disease for the individual and syphilis for the race. In general surgery the effects of gonorrhea were far-reaching, and it was an error to teach that it was a local and curable disease. Syphilis was more dangerous to the state than to the individual. The expectation of life was materially shortened. The immediate danger extended to the second generation, and the vitality of the stock seemed diminished for several generations. Syphilis gave surgery a large amount of work. It predisposed, Mr. Power thought, to cancer and tuberculosis. A diminution in the incidence of syphilis would best be brought about by better instruction of the medical student; each general hospital ought to establish a special department under the control of the senior medical officer. The department should be chiefly an outpatient clinic and should be held in the afternoon or in the evening. A few beds might be provided, but the essence of successful treatment in syphilis was early diagnosis and prolonged attendance. The department should be thoroughly equipped with a sufficient staff of pathologists with the necessary remedies. The expense would no doubt be considerable, but the state would be more than repaid. The establishment and use of such departments would gradually educate the public to appreciate the danger and thereby diminish the risk. Mr. Power did not think that any organized attempt to educate the public with regard to venereal diseases was desirable; he would rather trust to the gradual growth of education through the medical profession. He was not in favor of notification of venereal diseases, at any rate for the present.

## PARIS LETTER

PARIS, March 27, 1914.

### Investigation of the Sanitary Conditions of the Army

About a month ago, the Chamber of Deputies, after questions on the sanitary condition of the army, ordered an investigation into the condition of the barracks, the causes of morbidity and mortality and the hygienic measures required, giving full power of investigation to the committee of hygiene, the chairman of which is Dr. Lachaud, deputy from the Department of la Corrèze. The committee immediately began work and has now finished. It gave particular attention to the food of the army. After making a comparison of the food in the various European armies, Dr. Lachaud established that, after Great Britain, France is the country in which the soldiers are best nourished. On the other hand, it appears that owing to insufficient clothing, especially shoes, diseases have often resulted from exposure. Bedding is also insufficient. The greater number of avoidable diseases which have occurred during the past winter might have been prevented if the superior officers had exercised a more careful oversight of the naturally improvident soldier. In short, it appears to the commission that the high morbidity and mortality in the army are due to the classes of recruits recently added, to the excessive congestion of the troops in the barracks, which should be put in more sanitary condition, and to the unsatisfactory footwear of the men.

### Old Age Relief

The expense of assistance given to the aged, infirm and incurable increases each year, as shown by the following figures:

| | | Francs |
|---|---|---|
| 1908 | $16,014,246.80 | (80,071,234) |
| 1909 | 18,010,810.60 | (90,054,053) |
| 1910 | 18,641,625.60 | (93,208,128) |
| 1911 | 19,179,127.80 | (95,895,639) |
| 1912 | 20,954,703.60 | (104,773,518) |

Abuses are manifest, and the central committee protests against the facility with which local authorities are led to give aid. The municipal councils sometimes have restored the names of those whom the central committee had ordered removed from the list of those entitled to relief, or have erased names which the central committee had ordered added. The central committee fears that similar abuses will attend the administration of the new law of aid for numerous families.

### Bacillus-Carriers and Amebic Dysentery

March 24, Dean Landouzy of the Faculté de médecine de Paris drew the attention of the Académie de médecine to the importation into Europe, especially France, of amebic dysentery by bacillus-carriers. He reported the case of a patient who died of a large abscess of the liver due to amebic dysentery which was unrecognized, partly because the symptoms were obscure and partly because the patient had never left the north of France. The patient, therefore, had been infected in France in some as yet unknown manner. Other cases of the same kind have already been reported in France in the last ten years, and there is no doubt that amebic dysentery is being imported into our country. Presumably, the number of cases of amebic dysentery contracted in France will increase in proportion to the number of returned colonial troops from Africa and Asia. To lessen the danger, Landouzy suggests that, on their return to the barracks in France, the men should be examined repeatedly in order to detect germ-carriers. Professor Vaillard, while recognizing the danger of the constant introduction of convalescent or half-cured dysentery patients, believes that the danger is not so great as might be feared. Many infected men return from colonial service to France, and still there is no great increase in amebiasis contracted in this country. Apparently, the climatic and hygienic conditions are not favorable to the diffusion of the ameba.

### Peritoneal Congestion of Appendicular Origin

At the same session of the Académie de médecine, Dr. Mignon, medical inspector of the military hygiene service, made an interesting report on a dramatic complication of appendicitis which he observed three times and which consists of diffuse peritoneal lesions which cause extremely sharp abdominal pain with light fever, peritoneal facies, greenish vomiting, tympanism, etc. In presence of this striking syndrome, a peritonitis might be suspected, except for two symptoms, the slight rise of temperature (from 38 to 39 C., or from 100.4 to 102.2 F.) and the regularity of the pulse, which does not exceed 90 or 100. These symptoms last only forty-eight hours or three days at most, and then all recede. The treatment of this peritoneal congestion consists in the application of ice-bags to the abdomen without surgical intervention, which might result fatally. Operation is indicated, however, some weeks after the disappearance of the symptoms.

### The Income Tax and the Liberal Professions

The Chamber of Deputies and the Senate are at present disputing over the subject of the income tax, which has just been adopted by the Chamber. This fiscal reform has brought numerous protests from members of the liberal professions. The lawyers were the first to protest, arguing that merchants and manufacturers were taxed only on their net profits, and that the principal grew greater and greater as the annual profits increased; that, on the contrary, a lawyer's practice had no commercial value, that the income generally decreases with the advancing age of the incumbent, and that the fees form a gross profit, from which it is only fair to deduct professional expenses, rent, etc. The Syndicat des médecins du département du Rhône, presenting arguments of the same sort and emphasizing the steadily growing demands on physicians for free services and the application of social laws, unanimously passed a motion presented by its president. J. Teissier. The syndicat asks that (1) in deciding the professional income of physicians, the total submitted for taxation be diminished by those expenses peculiar to the profession, and that (2) their quota shall be less than that fixed for business men and merchants, since the physician accumulates nothing with his income, or annual profits, which can be compared to the principal which a commercial enterprise or a manufacture builds up, but, on the contrary, sees his profits diminish as he is weakened by age, and disappear the day he is no longer able to practice.

### Internship and Foreign Students

Following a request made by a delegation of physicians and surgeons of the hospitals of Paris (THE JOURNAL, March 21, 1914, p. 946), the minister of the interior has just decided that the internships in the hospitals shall remain accessible to foreign students.

### Death of Dr. Launois

Dr. Pierre-Emile Launois, physician at the Lariboisière Hospital, and *agrégé* professor at the Faculté de médecine de Paris, has just died, aged 58 years.

## BERLIN LETTER

BERLIN, March 27, 1914.

### Personal

Professor Ludloff of Breslau has been offered the position of director of the University Orthopedic Clinic to succeed the late Professor Joachimstal. As Ludloff recently was called to Frankfort-on-the-Main, it is not yet known which call he will accept.

March 13, Professor Aufrecht, the former director of the department of internal medicine at the Old City Hospital at Magdeburg, celebrated his seventieth birthday. Although he never worked at a university institute, still he has published a number of monographs that are worthy of notice. Of these his work on Pneumonia in Nothnagel's Encyclopedia is the best known.

### Sickness Insurance and Contracts with Physicians

The carrying into effect of the Berlin agreement, that is, the agreement entered into under the auspices of the government between the Leipsic League and the authorities of the Krankenkassen, has made but slow progress in the last few months. (It was described in The Journal, March 28, 1914, p. 1039.) Peace has now been consummated in Breslau where previously the Krankenkassen officials had rejected, with peculiar obstinacy, all the advances of physicians and the representatives of the government. Meanwhile the number of places open to insurance physicians which are still under the ban of the Leipsic League is considerable. By this is meant the advertised list of places which the league warns physicians against accepting without consulting with the league officials. The number according to the last advertised list is 273.

### Balneologic Congress

The thirty-fifth annual meeting of physicians in Germany specially interested in balneology was held at Hamburg in March.

#### BACILLI CARRIERS IN HEALTH RESORTS

Among the addresses of general practical importance was one by Ritter of Geesthacht on tuberculosis and influenza-bacilli carriers in public health resorts and sanatoriums. He stated that the influenza-bacilli carriers are more objectionable than the tuberculous, first because influenza itself is by no means an insignificant disease, but chiefly because other diseases, especially pulmonary tuberculosis, are very often started up into renewed activity under the influence of infection with influenza bacilli. To this must be added the facts that no appreciable immunity to influenza develops, and that numerous clinically healthy people are bearers of virulent influenza bacilli, especially in the upper air passages. In regard to tuberculosis, even if notification were strictly enforced, it would not be possible to distinguish the so-called open tuberculous, who are capable of communicating infection, so as to exclude them from health resorts for the non-tuberculous.

There remains no other measure but to limit as far as possible the danger of infection by instruction in hygiene, not only of the patients but particularly of those engaged in renting rooms and keeping boarders. In sanatoriums which are under the control of a single physician, this is possible, but it is more difficult in public health resorts. Here police regulations must be adopted with reference to the beds (washable coverings for the beds), the treatment of the expectoration (antispitting ordinance), the preservation and preparation of foodstuffs and the handling of dirty linen (to be transported only in washable sacks). It is especially to be desired and necessary that there should be supervision of the smaller boarding and lodging-houses, in which the sanitary conditions are often quite unsatisfactory. Public water works and sewerage naturally assist the sanitation of a health resort but they are not absolutely necessary. A disinfection apparatus and a trained disinfector should be available in every large health resort.

#### THE DESERT CLIMATE

The well-known superintendent of the sanatorium at St. Blasien, Professor Determann, gave his experience with reference to desert climates. The character of the desert climate is determined by the peculiar combination of the high temperature of the air with extreme dryness and bright sunlight. The evaporation through the skin is so great that one might speak of a greater metabolism of liquids in the skin which perhaps relieves the kidneys. The number of blood-corpuscles seems to be increased but the amount of hemoglobin is decreased. Important investigations of the blood plasma were made. There occurred a transference of all the processes of oxidation of the foodstuffs from the muscles to the skin. The desert climate is chiefly suitable for debilitated and elderly people with poor regulation of the heat in the skin but with healthy hearts, and also for rheumatic diseases of the muscles and joints, neuralgias, lancinating pains and for some forms of nephritis. In arteriosclerosis, caution should be used.

#### TREATMENT OF PULMONARY TUBERCULOSIS

Professor Brauer, director of the Eppendorf Hospital, spoke on the treatment of diseases of the lungs. He gave an account of his experience and that of his associates with the Friedmann remedy, which, he stated, in no way encouraged further trials. Citing the experience with Koch's tuberculin he repeatedly and expressly emphasized the grave responsibility which clinics and hospitals assume when they even seem to support the propaganda for a new remedy which has not received the support of a thorough experimental trial on animals.

Brauer then discussed the surgical treatment of various diseases of the lungs, especially severe cases of bronchiectasia, and showed by several cured patients and a large series of highly instructive Roentgen-ray pictures what fine results are often obtained by operative measures. In connection with this, however, he expressly emphasized the fact that the operation, in view of the danger of air embolism, is by no means harmless and should never be undertaken until after the most careful investigation of every factor which influences the condition.

#### CHRONIC KIDNEY DISEASE

Professor Volhard, director of the municipal hospital at Mannheim, discussed clinical experience and views with reference to Bright's disease. The speaker criticized the present-day nomenclature which hinders the understanding of the clinical forms of disease of the kidney, and proposed a classification and systematization of diseases of the kidney which seems to be equally satisfactory both to clinicians and to pathologists. In connection with this, he described the individual forms and their treatment, and especially called attention to the fact that the degree of insufficiency of the kidney depends on the amount of kidney tissue which remains capable of function. He also showed that acute diffuse glomerular nephritis possesses a great tendency to heal, and it is very important to secure the healing of nephritis in the earliest stage of the acute disease in order to prevent the development of a chronic nephritis that will lead to insufficiency of the kidney in the course of months, years or decades.

He further discussed the different forms of uremia. Only those forms should be regarded as genuine uremia which occur exclusively in cases of renal insufficiency and are characterized by azotemia, *i.e.*, a marked increase in the residual nitrogen in the blood. Cases of eclamptic uremia and their equivalents occur, on the other hand, without renal insufficiency and should be sharply distinguished on this account from genuine uremia. The same holds good for the pseudo-uremic transitory symptoms of renal sclerosis. In conclusion the speaker voiced the hope that it might be possible by timely discovery and supervision of benign hypertonic conditions to postpone the development of a severe degree of arteriosclerosis and to prevent the occurrence of the malignant form, *i.e.*, the combination of sclerosis with nephritis.

#### DIATHERMIA

Laqueur of Hamburg reported his experience in treatment with diathermy. After some general remarks on the theory, technic and apparatus of the method he discussed the therapeutic successes and failures of diathermy. Deserving of notice first of all is the analgesic action in acute joint diseases; this almost never fails, whatever the etiology. Diathermy has also a favorable action in chronic arthritis, neuritis, myalgia, epididymitis, prostatitis and paresthesias. No success was obtained in tabes, paralysis agitans or otosclerosis; moreover, in the treatment of diseases of the heart and blood-vessels as well as other diseases of the internal organs such as the lungs, the intestines or the liver, diathermy is of no great importance. On the other hand there is a future for it as a method of surgical treatment and for sensitizing before roentgenotherapy. Laqueur warns against unsuitable application and extending the indications too far.

## VIENNA LETTER

Vienna, March 25, 1914.

### Neutralization of Health Resorts in Time of War

It is just fifty years since the present imperial councilor, Dr. Kisch of Marienbad, suggested that in time of war all health resorts should be declared neutral, and that this sentence should be added to the Convention of Geneva. In spite of the interest it had evoked when it was formulated for the first time, the idea fell into oblivion. Recently Kisch has once more taken up his old idea and explained in several letters to the press how much could be done if all wounded men and officers could be cared for in the Austrian health resorts. These alone could provide more than 100,000 beds for wounded soldiers. The Austrian foreign office has taken the matter up, and efforts will be made for the acceptance of this plan by all nations.

### Sickness Insurance and Health of the Insured

The Union of the Krankenkassen of Vienna (Verband der Krankenkassen) which has 435,000 members, of whom 315,000 live in Vienna itself, reports that 12,063 members were unfit for work for more than three days during January. Tuberculosis was diagnosed in 963 cases, and other diseases of the air-passages in 1,834 patients except 533 cases of acute tonsillitis and 37 of pneumonia. Influenza was found in 703 patients, diseases of the circulatory system in 453, diseases of the alimentary canal in 690, and rheumatic affections in 1,059, while 1,971 accidental injuries were reported. During the month 279 members died, 101 deaths, or 38 per cent., being due to tuberculosis, 29 to other diseases of the air-passages, 43, or 15 per cent., to circulatory disorders, 24, or 9 per cent., to new growths, 5 to accidents and 14 to suicide. In comparison with the same period of the preceding year, a marked decrease in morbidity and mortality is notable, amounting to 20 per cent. in morbidity and 12 per cent. in mortality.

### Proposed Fee for the Use of Outpatient Departments

The constant lack of funds under which our state hospitals are laboring owing chiefly to red tape as well as lack of liberality on the part of the government—has prompted the officials controlling the management of these institutions to suggest the payment of a small fee by every patient treated in the outpatient departments and the "ambulances" of our clinics and hospitals. The ridiculous sum of one cent has been suggested, but even this has been received with scorn by both the profession and the public. The latter do not want to pay anything at all, since they pay rates and taxes, from which the hospitals are kept (or have to be kept) going, while the profession justly contends that it cannot ask for payment from those who are so poor as to come to hospitals. Anyhow, the amount collected from this small fee would be so insignificant that it is not worth while to bother the patients. The idea itself is a sound one, however, and could be easily worked out in such a way that for the first consultation and for operations (minor surgery) an appropriate, though modest fee could be demanded. Hospitals would have to be conducted not only under humanistic, altruistic notions, but also on business terms, partly at least. The idea has come to stay.

### Veterinary Students Strike

The conditions prevailing in our veterinary schools are far from ideal. They are controlled and owned by the ministry of war, and the freedom enjoyed by the students of other universities is a luxury unknown to those taking up their curriculum in the veterinary university. Nevertheless, until a short time ago, the managing board of the latter institute maintained the privileges of the academic students. But quite recently, instruction in horseshoeing was given to men of no academic standing in this university and the indignation of the students at what they termed lowering the standard of the institute grew so intense that an actual uprising took place. The students struck work, prevented the classes given to other persons in the building, and refused to study any further until substantial satisfaction should be given them for the offense done them by degrading the university to a simple horseshoeing school. Needless to say, this occurrence is due to the attitude of military circles toward students and schools in general and the university was closed as answer to the demands of the students. Meanwhile, negotiations are going on to settle the affair.

### The Proposed Successor of von Noorden

The vacant clinic of von Noorden, who preferred to leave Vienna because of unpleasant occurrences of a private nature (not medical), proves a real problem to those responsible for the administration of the board of teaching. The splendid equipment of this institute necessitates for its head a man of the very first class, but there are not many of this kind who would be willing to give up their present position. After long deliberation, the committee of the medical faculty of Vienna recommended that negotiations be begun with Professor Wenkebach of Greifswald. This scientist, who is well known for his researches in metabolism and physiology, although not so renowned as von Noorden, would be an excellent acquisition for Vienna owing to his teaching abilities. He is also not German but a native of Holland, which is another advantage in the eyes of our men, who have been none too well pleased with their experiences with the professors hailing from Germany. The esteem paid to Wenkebach is clearly shown, as he was recommended *primo et unico loco.*

## Marriages

Samuel Duff Anderson, M.D., Elvaston, Ill., to Mrs. Lena Everhart of Littleton, Ill., at Quincy, Ill., recently.

Surgeon Raymond Spear, U. S. Navy, to Miss Eleanor Coppinger Smith, in Washington, D. C., April 1.

Honore D. Valin, M.D., St. Peter, Minn., to Miss Frances Louise Powell of Kasota, Minn., March 28.

Charles Edward Gilliland, M.D., Austin, Tex., to Miss Olive Wiley of Cameron, Mo., March 16.

Ernest Milton Watson, M.D., Boston, Mass., to Miss Alice M. Wright of Worcester, Mass., April 2.

Orton Eugene White, M.D. Buffalo, N. Y., to Miss Gertrude M. Shean of Syracuse, N. Y., March 28.

Albert Virgil Franklin, M.D., to Miss Racine Olcott Curtis, both of New York City, March 25.

Frank V. McConkey, M.D., to Miss Grace M. Lindermuth, both of York, Pa., March 31.

Frank Monroe Weldy, M.D., to Miss Rose Aurelia Seifried, both of Chicago, April 4.

## Deaths

**John D. McCleary, M.D.** College of Physicians and Surgeons, Keokuk, Ia., 1867; a Fellow of the American Medical Association; and for some time a member of the Board of Regents of the Iowa State University; for thirty-eight years a member of the Board of Commissioners for Insanity of Warren County, Ia.; and for fifty-two years a practitioner of Indianola, Ia.; assistant surgeon of the Thirty-Fourth and Forty-Sixth Iowa Volunteer Infantry during the Civil War; for forty-one years local surgeon of the Rock Island System; died at his home in Indianola, April 2, aged 84.

**Gustavus Pierrepont Davis, M.D.** College of Physicians and Surgeons, New York City, 1869; a member of the Connecticut State Medical Society, and formerly its president; for more than quarter of a century a visiting and consulting physician to the Hartford Hospital; for many years medical director of the Travelers' Insurance Company, Hartford; secretary and a member of the executive committee of the Connecticut Humane Society; died at his home in Hartford, April 1, aged 69.

**Robert Cameron McDonald, M.D.** McGill University, Montreal, 1880; a Fellow of the American Medical Association; for two years president of the Nebraska State Medical Association and formerly president of the Dodge County Medical Society; local surgeon at Fremont, Neb., for the Burlington System; a leader among the physicians of the state; died suddenly in Fremont, Neb., April 3, from cerebral hemorrhage, aged 54.

**Herbert Otto Statler, M.D.** University of Michigan, Ann Arbor, 1892; a member of the Michigan State Medical Society, and Kalamazoo (Mich.) Academy of Medicine; local surgeon at Kalamazoo for the Michigan Central Railroad; for four years a member of the medical staff of the Kalamazoo State Hospital; died suddenly at his home, March 29, from heart disease, aged 46.

**Samuel Patterson Tipton, M.D.** Rush Medical College, 1902; adjunct professor of clinical surgery in Southwestern University Medical College, Dallas, Tex.; a member of the State Medical Association of Texas, and a member of the staff of St. Paul's Sanitarium, Dallas; was instantly killed, March 26, when his automobile fell forty feet into a ravine near Dallas.

**Elihu Brittin Silvers, M.D.** College of Physicians and Surgeons, New York City, 1852; for several terms a member of the common council of Rahway; formerly superintendent of schools, and a member of the board of education; died at his home in Rahway, N.J., April 2, from heart disease, aged 85.

**Edward Walter Pahl, M.D.** Keokuk Medical College, College of Physicians and Surgeons, 1907; a Fellow of the American Medical Association; formerly of Cantril, Iowa; died at his home in Milton, Iowa, March 27, aged 29.

**Orange H. Russell, M.D.** College of Physicians and Surgeons, Keokuk, Ia., 1866; for half a century a practitioner of medicine; died at his home in Lomax, Ill., from senile debility, March 31, aged 74.

**William Henry Dearing, M.D.** University of Iowa, Iowa City, 1882; a member of the Nebraska State Medical Association; at one time state senator from Cass County, and formerly superintendent of the State Hospitals for the Insane at Lincoln and Norfolk, and the State Institution for the Feeble-Minded, Beatrice; died at his home in Lushton, Neb., March 28, aged 54.

**Thomas A. Rex, M.D.** Georgetown University, Washington, D. C., 1865; University of Pennsylvania, Philadelphia, 1866; a member of the Medical Society of the State of Pennsylvania; a practitioner of Pittsburgh for more than forty years; surgeon in the federal service during the Civil War; died at the home of his son in Los Angeles, March 31, aged 76.

**Herman Fred Lange Ziegel, M.D.** College of Physicians and Surgeons, New York City, 1901; a Fellow of the American Medical Association; assistant in the children's department of Mount Sinai Hospital, and a member of the staff of Beth Israel Hospital, New York City; died at his home in New York, March 27, from heart disease, aged 37.

**Lafayette Woodruff, M.D.** Starling Medical College, Columbus, O., 1852; a Fellow of the American Medical Association; formerly a member of the board of censors of his Alma Mater; a veteran of the Civil War; for forty-eight years a practitioner of Alton, O.; died at his home in Columbus, April 2, from cerebral hemorrhage, aged 83.

**Samuel H. Gault, M.D.** University of Nashville, Tenn., 1874; of Rogersville, Tenn.; surgeon in the Federal service during the Civil War; once postmaster of Rogersville and representative in the Legislature from Hawkins County; died March 31, at a sanatorium in Battle Creek, Mich., from pneumonia, aged 71.

**Mordecai Hiatt Fletcher, M.D.** Miami Medical College, Cincinnati, 1884; a Fellow of the American Medical Association and Cincinnati Academy of Medicine; a dentist and oral surgeon of high repute in Cincinnati; died at his home March 26, from cerebral hemorrhage, aged 64.

**John Waldo Johnson, M.D.** Harvard Medical School, 1877; in 1893 a member of the Boston city council, and three years later a member of the House of Representatives; a member of the Massachusetts Medical Society; died recently at his home in Boston, aged 57.

**Edgar de Mott Stryker, M.D.** College of Physicians and Surgeons, New York City, 1901; formerly of Pine Bush, N. Y.; but for the last four years in charge of a Hospital in Holkol, Korea; was shot and killed, March 29, by a Japanese, said to have been insane.

**Leila Gertrude Bedell, M.D.** Boston University, 1878; for many years a practitioner of Chicago and for ten years a resident of Tryon, N. C.; from 1885 to 1888, president of the Chicago Women's Club; died at her home in Tryon, N. C., March 28, aged 76.

**Albert Brown Kruidenier, M.D.** College of Physicians and Surgeons, Chicago, 1909; formerly an intern in Cook County Hospital; of Aberdeen, S.D.; died in St. Luke's Hospital in that city, April 2, three days after an operation for appendicitis, aged 31.

**Thomas J. Ellis, M.D.** Medical College of the State of South Carolina, Charleston, 1874; formerly of Amherst, Va., but for the last four years resident physician at the Telfair Sanitarium, Greensboro, N. C.; died in that institution, March 25, aged 52.

**James Perrin Smith, M.D.** Medical College of Georgia, Augusta, 1885; for two terms a member of the city council of Augusta, Ga., and for seventeen years a member of the board of education; died in the Augusta City Hospital, March 17.

**J. Thor Rohm, M.D.** College of Physicians and Surgeons, Baltimore, Md., 1880; for thirty years a practitioner of Redding, Cal.; once mayor of that city; and for one term coroner of Shasta County; died at his home, March 31, from nephritis, aged 62.

**Francis Delmont, M.D.** University of California, San Francisco, 1874; a member of the Medical Society of the State of California; and a pioneer practitioner of San Francisco; died in St. Winifred's Hospital, San Francisco, April 1, aged 73.

**Warren H. Horton,** Kansas City (Mo.), Homeopathic Medical College, 1891; city physician of Florence, Neb.; a veteran of the Civil War; was found dead in his automobile near Florence, Neb., April 4, from heart disease, aged 70.

**George W. Brumley** (license, Ark., 1903); a pioneer practitioner of Randolph County; died at his home near Biggers, Ark., March 23, aged 68.

**Martin Hagen, M.D.** Chicago College of Medicine and Surgery, 1908; a Fellow of the American Medical Association; of Viroqua, Wis.; was thrown from his buggy by a collision with a runaway team, March 22, and was instantly killed, aged 41.

**Payson Jonathan Flagg, M.D.** Jefferson Medical College, 1885; a member of the Massachusetts Medical Society; and chairman of the board of health of West Springfield, Mass.; died at his home in Mittineague, Mass., March 22, aged 55.

**Patrick Sheedy Byrne, M.D.** Bellevue Hospital Medical College, 1884; a member of the Washington State Medical Association; at one time mayor of Spokane, Wash.; died in Spokane, Wash., March 23, from cerebral hemorrhage, aged 58.

**Horace E. Seastrunk, M.D.** Barnes Medical College, St. Louis, 1896; local surgeon for the Southern Pacific Railway at Orange, Tex., and health officer of Orange County; died at the home of his father in Orange, Tex., March 25, aged 39.

**Charles Emery Rowell, M.D.** New York Homeopathic Medical College, New York City, 1875; mayor of Stamford, Conn., 1910 to 1913; a member of the Connecticut Legislature in 1897; died at his home in Stamford, Conn., March 29, aged 64.

**Wells S. Jones, M.D.** Starling Medical College, Columbus, Ohio, 1866; a veteran of the Civil War, in which he served as colonel of the Fifty-Third Ohio Volunteer Infantry; died at his home in Waverly, Ohio, March 21, aged 83.

**William E. Easter, M.D.** Western Reserve University, Cleveland, 1853; formerly president of the Ashley County (Ark.) Board of Health; a Confederate veteran; died at the home of his son in Hamburg, Ark., March 23, aged 82.

**Burvia A. Houser, M.D.** Medical College of Indiana, Indianapolis, 1890; a director of the Farmers' and Merchants' National Bank, Wabash, Ind.; died at his home in that city, March 25, from disease of the kidney, aged 47.

**Ninian Calvin Smillie, M.D.** University of Bishop's College, Montreal, 1882; for fifteen years port physician at Gaspé Basin, Que., and afterward a practitioner of Montreal; died at his home in Ottawa, Ont., February 12, aged 55.

**Anabel McGaughey Stuart, M.D.** Cooper Medical College, San Francisco, 1878; a Fellow of the American Medical Association; an Army nurse during the Civil War; died at her home in Santa Rosa, Cal., March 19, aged 73.

**George Frederick Newcombe, M.D.** College of Physicians and Surgeons, New York City, 1877; for five years coroner of Passaic County, N.J.; died at his home in Pompton Plains, N.J.; April 1, from heart disease, aged 64.

**Frank Schilcher, M.D.** University of Munich, Germany, 1857; for several years a surgeon in the Bavarian Army; for nearly forty years a practitioner and druggist of Pennsylvania; died at his home in Freeland, Pa., aged 80.

**John D. Wood** (license, Lawrence County, Pa., 1881); a practitioner of New Castle, Pa., for forty-seven years; a veteran of the Civil War; died at the Home for Soldiers and Sailors, Erie, Pa., March 24, aged 71.

**John Herbert Cory, M.D.** Eclectic Medical College of the City of New York, 1878; for many years a member of the Board of Education and Health Officer of Geneva, Ill.; died at his home in that city, about March 25, aged 62.

**William J. Bartholomew, M.D.** Northwestern Medical College, St. Joseph, Mo., 1887; a Fellow of the American Medical Association, and a druggist and physician of Gothenburg, Neb.; died at his home, March 31, aged 52.

**A. Otto Hardenstein, M.D.** Hahnemann Medical College, Philadelphia, 1881; of Vicksburg, Miss.; died in the Presbyterian Hospital, New Orleans, La., March 22, a week after an operation on the stomach.

**Isaac B. Burrell, M.D.** Leonard School of Medicine, Raleigh, N. C., 1893; one of the best-known colored practitioners of Roanoke, Va.; died in the Freedmen's Hospital, Washington, D. C., March 21, aged 46.

**Elisha C. Dunn, M.D.** American Eclectic Medical College, 1888; at one time secretary of legation at Constantinople; and once alderman of Rockford, Ill.; died at his home in that city, March 23, aged 74.

**John E. Lopp, M.D.** Barnes Medical College, St. Louis, 1898; formerly health commissioner and a member of the city council of Jefferson City, Mo.; died at his home in Lupus, Mo., March 23, aged 39.

**Robert Funk,** for more than thirty years a practitioner of Tacoma, Wash; died at his home in that city, Dec. 14, 1913, from carcinoma of the stomach, aged 79.

**Bliss S. Thorne, M.D.** New York University, New York City, 1864; a member of the New Brunswick Medical Society; died at his home in Butternut Ridge, N.B., January 25, from diabetes, aged 71.

**Harry Barlow Cartwright, M.D.** Rush Medical College, 1891; a Fellow of the American Medical Association; died at his home in East Liberty, Pittsburgh, Pa., March 20, from pneumonia, aged 50.

**Thomas William Gallion, M.D.** University of Tennessee, Nashville, 1885; formerly of Dandridge, Tenn.; died at his home in Mariposa, Cal., about March 28, from cerebral hemorrhage, aged 58.

**Harvey Henderson Chase, M.D.** College of Physicians and Surgeons, New York City, 1872; for thirty-seven years a practitioner of Linden, Mich.; died in Shelbyville, Ind., March 29, aged 65.

**William A. Metcalf, M.D.** Jefferson Medical College, 1884; of Steelville, Mo.; a member of the state Legislature in 1889; died in Josephine Hospital, St. Louis, March 17, from paralysis, aged 63.

**Kay A. Sweet, M.D.** University of Buffalo, N.Y., 1880; for twenty years a practitioner of Frewsburg, N.Y.; died at the home of his sister in Bradford, Pa., April 1, aged 61.

**William T. Shrout, M.D.** Eclectic College of Physicians and Surgeons, Indianapolis, 1891; died at his home in Waldron, Ind., March 28, from cerebral hemorrhage, aged 68.

**Burt Leander Eastman, M.D.** Chicago Medical College, 1892; a specialist in gynecology and abdominal surgery; died at his home in Kansas City, Mo., March 18, aged 43.

**Eugene G. West, M.D.** Hahnemann Medical College, Chicago, 1884; formerly of Effingham, Ill.; died at his home in Orange, N. J., March 29, from scarlet fever, aged 49.

**James Clinton Baird, M.D.** Vanderbilt University, Nashville, Tenn., 1882; Tulane University, New Orleans, 1883; died at his home in Los Angeles, Mach 22, aged 60.

**John B. Wurtz, M.D.** Hahnemann Medical College, Philadelphia, 1876; died at his home in Germantown, Philadelphia, April 3, from cerebral hemorrhage, aged 60.

**Erwin G. Beckwith, M.D.** Pennsylvania Medical College, Philadelphia, 1860; died at his home in Fostoria, Ohio, March 5, from cerebral hemorrhage, aged 85.

**Mary Cobb Stacy Hodgson, M.D.** New England Female Medical College, Boston, 1867; died at her home in Stoneham, Mass., February 18, aged 72.

**Alexander Sangster, M.D.** Victoria University, Coburg, Ont., 1884; died at his home in Stouffville, Ont., March 23, from Addison's disease, aged 55.

**Charles T. Hunter, M.D.** University of Tennessee, Nashville, 1878; died at his home in Springerton, Ill., March 18, from heart disease, aged 74.

**Vincent Gilbert Hamill, M.D.** University of Buffalo, N. Y., 1884; died at his home in New York City, March 25, from heart disease, aged 51.

**William Peach, M.D.** Cleveland University of Medicine and Surgery, 1877; of Pittsburgh, Pa.; died in Elizabethtown, Pa., February 12, aged 76.

**Harvey James Sullivan, M.D.** University of Toronto, Ont., 1902; died at his home in Chatham, Ont., March 18, from pneumonia, aged 38.

**Emery C. Whitaker, M.D.** University of Louisville (Ky.) 1875; of Maysville, Ky.; died in Cincinnati, March 6, from pneumonia, aged 61.

**Albert Waldo Forbush, M.D.** Eclectic Medical College of the City of New York, 1881; of Somerville, Mass.; died about March 22, aged 60.

**Robert J. McMichael, M.D.** Wooster (Ohio) Medical College, 1881; died at his home in Eau Claire, Wis., February 6, aged 63.

**Benjamin F. Spencer, M.D.** University of Louisville, Ky., 1874; died at his home in Weston, Tex., March 25, aged 61.

**J. Thornton Smith, M.D.** Baltimore (Md.) University, 1890; died at his home in Chaneysville, Pa., January 31, aged 64.

**George Harrison, M.D.** Trinity Medical College, Toronto, 1890; died at his home in Clifford, Ont., March 7, aged 55.

**Marshall R. Glenn, M.D.** Jefferson Medical College, 1909; died at his home in Asheville, N. C., January 24, aged 31.

**Samuel B. Swavely, M.D.** Jefferson Medical College, 1877; died at his home in Pottstown, Pa., March 4, aged 62.

# *The Propaganda for Reform*

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

## HYPEROL

### Report of the Council on Pharmacy and Chemistry

The Purdue Frederick Company, exploiters of Gray's Glycerine Tonic, have recently been advertising to the medical profession a nostrum called Hyperol. The following report to the Council, by the referee, was adopted and its publication authorized. W. A. PUCKNER, Secretary.

According to the label, Hyperol is "A Utero-Ovarian Corrective and Tonic." The circular accompanying the trade package states that it is:

> "Indicated in all functional diseases of women such as: Amenorrhea, Dysmenorrhea, Menorrhagia, Metrorrhagia, Subinvolution, and in all conditions requiring a utero-ovarian corrective and tonic."

From another circular we learn that:

> "Hyperol is a combination of Hydrastine, Aloin, Iron, Apiol and Ergotin. Its components to a certain extent will indicate its action, but the therapeutic effects of each ingredient seems to be augmented to an unusual degree by use in this particular combination. The proportions of each have been determined by extensive clinical experimentation, and the formula seems to be exactly balanced to produce the best therapeutic effects in all derangements of the utero-ovarian functions."

This "formula" is not very enlightening and a physician who wrote for further details was told that Hyperol contained:

| | |
|---|---|
| Hydrastin | 1/40 gr. |
| Aloin | 1/12 gr. |
| Iron salts | 3 gr. |
| Apiol (Special) | 3 ♏ |
| Ergotin | 1 gr. |

And excipients.

If this is correct, then, so far as its active ingredients are concerned, Hyperol is but a mixture of well-known drugs, having contradictory properties. According to the claims in the circular quoted above, it is useful both in amenorrhea and in menorrhagia. The mixture is as unscientific as it is unnecessary. It cannot be adapted to any individual case; when ergot is indicated, apiol would naturally be contra-indicated; if aloes is appropriate, hydrastin may defeat the object sought. It is unnecessary because no intelligent physician would prescribe such a combination of drugs in any given case. The claims are exaggerated, improbable and foolish. Hyperol conflicts with the following rules of the Council:

*Rule 4*, in that statements on the label and in the circular enclosed with the trade package advertise it to the public in the treatment of diseases.

*Rule 6*, in that exaggerated and unwarranted claims are made for its therapeutic qualities.

*Rule 8*, in that the name of this pharmaceutical mixture fails to disclose the potent constituents.

*Rule 10*, in that it is unscientific.

It is recommended that publication of this report be authorized to call attention to the unscientific character of such complex mixtures.

EDITOR'S NOTE: Hyperol is advertised in *American Medicine* and the *St. Paul Medical Journal.*

## THE GERMAN COUNCIL ON PHARMACY AND CHEMISTRY

At the meeting of the German Congress for Internal Medicine in 1911, a German council on pharmacy and chemistry, Die Arzneimittelkommission des Kongresses für innere Medizin, was organized, with purposes similar to those for which the Council on Pharmacy and Chemistry of the American

Medical Association was created. As practically nothing has been done to restrict the advertising of proprietaries in Germany, the task of the commission was tremendous. Its work has been noted in THE JOURNAL from time to time.[1] A review of what has been done up to the present is given by Heubner,[2] and indicates some differences between conditions in Germany and this country. The members of the commission found confronting them the same evils that met the early efforts of the American council, namely, dominant proprietary interests, a subservient and financially interested medical press and an indifferent profession. Moreover, the pecuniary interest of the editors of German medical journals in the profits of advertising seems to be more direct and more important than in America. The German commission, in Heubner's opinion, was placed at a disadvantage compared with the American council from the first. Funds for investigation were lacking, and the commission had no journal in which its objects could be presented to the medical profession. At the beginning of its work the commission established rules very similar to those of the American Council on Pharmacy and Chemistry. It listed the articles advertised in German medical journals in three groups: (1) those which conformed to the rules of the commission in the method of advertising; (2) those which violated the rules, and (3) those whose classification could not be determined. This amounted to an attack on advertising in medical journals and was undoubtedly premature. It aroused at once the antagonism not only of the proprietary interests but also of the medical press.

"The establishment of the lists of medicines encountered opposition or hindrance from three sources," says Heubner, "first, from the pharmaceutical and chemical manufacturing interests; second, from the medical press, and third, from the medical profession itself. The 'trade' naturally was irritated at any attempt to interfere with 'business,' and brought forward a number of reasons why the procedure adopted by the commission was especially calculated to injure the 'general welfare.' This opposition was to be expected and might be disregarded. The extent to which the medical press was dependent on the drug trade, however, had not been foreseen. The same journals in which for many years all sorts of articles on the evils in the trade in medicines had appeared showed themselves decidedly cool or emphatically critical toward the accomplished fact of the 'lists of remedies.' In hastily written articles a whole series of mistakes in general and in particular were published. . . . One thing, however, was not explicitly stated—namely, that in any event the lists of remedies must be rejected, and for this the cogent reason was anxiety in regard to advertisements. The editors had been sufficiently warned. The *Therapeutische Monatshefte*, which had not submitted to the wish of a great industrial firm in another matter, was punished for this offense by the withdrawal of all its advertisements. None of the other publishers wanted to risk such a reduction in income, and none of the editors was willing to undertake the risk to the extent of a conflict with his publisher. Curiously, the idea does not seem to have arisen that if the threatened publishers had made common cause they might have freed their editors from the distressing burden of improper advertisements with scarcely any risk at all."

Heubner believes that another motive influencing the editors was the fact that their efforts in behalf of reform, sporadic and ineffective at the best, had been replaced by the propaganda of the commission. It seems clear that the opposition from the press was due not to principle chiefly but to financial pressure. The editors, however unworthy their motives, nevertheless exerted, as in other cases, a powerful influence on public opinion. Among the medical public, opposition was encountered because many physicians were interested—sometimes financially—in one or more of, the discredited remedies. The mass of the profession either were not interested or misunderstood the position of the council.

Despite the obstacles encountered and the difficulties involved, the council and the Congress of Internal Medicine have not wavered. Heubner, however, sums up the work of the council in a rather pessimistic tone, as follows:

"What are the results of the great amount of labor, self-sacrifice, hopeful courage and wasted money? Two journals pretend to be doing wonders in that they are eliminating some of the worst misstatements, distortions, obscurations and concealments of truth in the advertisements. Physicians at certain intervals receive lists of preparations, the manufacturers of which as a rule do not need to pay any attention to the council because their dealings are directly with the public, because their advertisements are usually made to physicians by word of mouth, or their preparations have already a sufficient reputation—no matter for what reason. . . .

"There is little doubt that the results have not paid for the efforts expended. There is no doubt that the whole enterprise will amount to nothing more than a splash in the water if the work is not extended, just as a preliminary skirmish must remain without effect unless followed up by the main army. The main army in this case is the German medical profession. However gratifying the progressive attitude of some individuals and, in fact, of some associations, such as that of Wurtemburg, may be, the fact remains that the profession [in Germany] is not advancing but rather tends to retrograde. The support which the executive committee of the Aerztevereinsbund at first accorded to the efforts of the council was later limited. All further progress depends on the developments of the near future. Will sufficient power be given to the German medical profession after settlement with the insurance societies to permit them to follow the example of their American colleagues?

"It should be made perfectly clear," Heubner insists, "that we are concerned with questions of importance for the standing and influence of the medical profession among the people, and, consequently, for the conditions of its future existence. But even now the consequences of the prevailing indifference to the traffic in nostrums are making themselves felt. The prevalence of self-medication, which was lately recognized by a Berlin court as the normal for 'slight' affections and which has already been made an argument against the extension of the compulsory prescription law, is merely a result of the great evil based on the loss of control by the medical profession of the remedies it employs. Only centralized and energetic measures on the part of the organized profession can secure a reformation of the intolerable conditions that prevail in the field of modern industry in medicine and foodstuffs. The American Medical Association and the German Arzneimittelkommission have shown that a little sacrifice and energy can secure a condition in which the medical profession becomes a powerful factor, able to dictate in the field of the trade in medicine instead of letting itself be dictated to."

## THE SUBLIME ASSURANCE OF THE FRIEDMANN VACCINE PROPAGANDA

Under this heading the *Southern Medical Journal* for March publishes the following editorial:

"A certain lawyer in Milwaukee, by the name of Rose, has written a letter to the senior editor of this journal asking him to 'calmly and dispassionately consider such evidence as I may send to you respecting the merits of the Friedmann vaccine.'

"Mr. Rose will be remembered by Alabama physicians as the apostle from the city made famous by certain brews of beer who a few years ago came into our state to instruct from the public platform our people regarding the health-giving properties of alcoholic beverages. He is probably prompted by the same philanthropic impulses when he attempts to inform physicians and the public of the 'miraculous results' of the serum that made Friedmann famous as well as rich.

"The editor begs leave to assure Mr. Rose that he has already devoted considerable attention to the claims of the Friedmann vaccine, 'in an unprejudiced way,' and that his information was derived from 'unprejudiced' *sources*, such as 'unprejudiced' case histories wherein a few instances of temporary improvements were swamped by the authoritative reports of ultimate failure; he has considered the conservative estimates presented by investigators in hospitals and in the United States Public Health Service, and has reached the conclusion that thus far the Friedmann 'cure' has signally failed to make good; that, in this country at least, it is being exploited in a way that, in itself, would shake any faith an ethical physician might feel inclined to repose in it; and that not until medical authorities in the places where the experiment has been thoroughly tried have pronounced it trustworthy will he see any good reason for changing his opinion. One *thing is certain; he will not accept as reliable, testimony in* its favor from any physicians who are making it a specialty, or serve in hospitals chiefly devoted to its exploitation. He will not attach any value to the opinions of lawyers, however eminent, or of preachers, however devoted, for the simple reason that they lack the professional knowledge which alone could render them competent judges. As for testimonials, their absolute worthlessness is illustrated by the literature distributed by Royal Germateur, Peruna, and 'Duffy's Pure' vile compound. 'David S. Rose, lawyer,' writes as follows:

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[1] A German Council on Pharmacy and Chemistry, Propaganda, THE JOURNAL A. M. A., July 27, 1912, p. 291; Current Comment, Aug. 10, 1912, p. 432. Reform in the Advertising of Proprietary Medicinal Articles, Berlin Letter, Dec. 7, 1912, p. 2081. Heubner, W.: Wünsche zur Reform des Arzneivertriebes, Therap. Monatsh., 1912, xxvi, No. 11; abstr., THE JOURNAL A. M. A., Dec. 14, 1912, p. 2195.

[2] Heubner: Die Arzneimittelkommission des deutschen Kongresses für innere Medizin, Therap. Monatsh., 1914, xxviii, 185.

"'*We* opened *our* laboratories here on August 21, and so far *we* have treated *about* one hundred cases.' (Italics ours.—*Journal.*)

"One might wonder whether the 'we' includes any physicians, or whether they are all lawyers.

"Inspired by this liberal offer on the part of a representative of the legal profession to enlighten the doctors of the South on a medical point of great importance, will not some enterprising Southern doctor provide a *quid pro quo* by instructing Mr. Rose in the routine of court procedure in Wisconsin? *It will not be necessary for the doctor to know any more about* law than most lawyers know about medicine. Here is an opportunity for missionary work."

# *Correspondence*

## The Friedmann Serum and the Society of German Sanatorium Physicians

*To the Editor:*—Early last month in some of the leading New York American and German-American newspapers there appeared a statement that on the occasion of the annual meeting of the Association of German Sanatorium Physicians on February 28, one hundred and twenty of these physicians had carefully investigated the results of Friedmann's work, that 40,000 patients had been treated with Friedmann's serum and that the successes had been simply phenomenal. It was furthermore reported that Dr. Friedrich Franz Friedmann had been the guest of honor at a banquet given by the sanatorium physicians and that he had been effusively thanked by Privy-Councillor Professor Dr. Pannwitz for his work, in the name of the sanatorium physicians present. Finally, said the newspaper report, Dr. Friedmann stated to an *American* press representative that Professor Ehrlich had expressed the opinion that the Friedmann serum was absolutely harmless.

In a communication bearing the signatures of the president, Dr. O. Pischinger, the vice-president, Dr. J. Ritter and the secretary, Dr. Schellenberg, of the Association of Sanatorium Physicians of Germany, Austria and Switzerland, I have been requested to enlighten the American medical profession concerning their visit to the Friedmann Institute in Berlin, and to give the facts the widest possible publicity, at least among medical men.

First of all, the officers of the association expressed their astonishment that the visit of the sanatorium physicians to the Friedmann Institute should have been used as a means of advertising Friedmann and his remedy abroad. Because of the report of cures which constantly crept into the German medical and lay press and the demands for the remedy from many sanatorium patients, it was natural that the sanatorium physicians while visiting Berlin should wish to see for themselves what was going on in the Friedmann Institute. Thus they asked Friedmann to show them his cases and give them a talk on the indication for his remedy. About 60 of the 125 members of the association visited the Friedmann Institute *Feb. 26 and 27, 1914. They distinctly stated that their visit* was in no way to be considered a pilgrimage to pay homage to Friedmann for his discovery but rather an investigation to find out just how much truth there was in his claims. Many had already tried the remedy and had been disappointed; others were prejudiced, and it was for this reason that they wanted to examine critically into Friedmann's claims. No banquet was given to Dr. Friedmann. After the conclusion of the visit there was a confidential conference, without Dr. Friedmann, at which the members concluded to discuss the theme again next fall and in the meantime collect as much material as possible.

That I may not be accused of prejudice or misinterpretation, I wish to quote in German the most essential statements which were made as the result of the visit of the association to the Friedmann Institute:

"Wir waren uns darüber einig, dass die uns von Friedmann *gezeigten Fälle klinisch recht schlecht beobachtet* waren und im Allgemeinen keineswegs als 'Erfolge' angesehen werden konnten. Wir haben uns gewundert, dass uns keine ordnungsmässig geführte Kurve gezeigt wurde. Die Roentgenplatten, die man uns zum Beweis zeigte, bewiesen tatsächlich garnichts. Wir geben zu, dass einzelne Fälle allerdings einen gewissen Eindruck auf uns gemacht haben, *wobei wir uns aber auch darüber klar waren, dass solche Fälle auch ohne jede Behandlung und bei jeder Behandlung vorkommen können*, und dass die Zahl dieser Fälle verhältnissmässig *viel* zu klein war, um ein günstiges Urteil über das Mittel abgeben zu können."

[We were of the unanimous opinion that the cases shown *by Friedmann had been clinically very badly observed, and as* a whole could not be considered as successes or cures. We were astonished that no carefully recorded temperature and weight curves were shown. The Roentgen-ray plates which were shown to us as evidence of cures did not actually prove anything whatsoever. We will admit that some cases indeed made an impression on us, but here we must also remember that such cases occur without any treatment or with any kind of treatment, and that the number of them were altogether too few to permit a favorable judgment of the value of the remedy.]

I have since received a letter from Geheimrat Prof. Dr. Pannwitz in which he substantiates what has been said in the official communication from Drs. Pischinger, Ritter and Schellenberg. He particularly expresses his indignation at the use of his name in connection with a banquet which never took place. He declared the whole thing to be a newspaper invention.

Prof. Dr. L. Brauer, director of the Eppendorfer Krankenhaus of Hamburg, who had also heard the American version of the sanatorium physicians' visit to the Friedmann Institute in Berlin, wrote me an indignant letter, saying that he "had tried Friedmann's remedy at the Eppendorfer Krankenhaus and the results had been unfavorable." He has reported these unfavorable results recently at the Balneological Congress and the Hamburger Aerzte Verein, and intends to publish more on the subject soon. He has since sent me the advance sheets of his forthcoming communication regarding Friedmann wherein he says: "The pulmonary cases tested in the Eppendorfer and Salemburg hospitals with Friedmann's method did not improve, but some of them without a shadow of doubt were rendered worse by the treatment. Five cases of bone and joint tuberculosis in children treated with the Friedmann serum by Dr. Trepler in the Salemburg institution were not influenced at all by the treatment and in one case, although the movement of the afflicted joint increased, the general condition of the lesions was rendered worse."

In paying a gratifying tribute to the earnest and unbiased work done with Friedmann's serum by American investigators, which likewise gave unfavorable results, Professor Brauer advised me, in the interest of the German medical profession, and especially in the interest of the unfortunate patients who naturally are inclined to accept such advertised endorsement as genuine, that it would be most desirable for the present status of the Friedmann remedy in Germany to be made clear to the American medical profession and the laity.

S. A. Knopf, M.D., New York.

### Face-Powder Conjunctivitis

*To the Editor:*—For several years occasional cases have come under observation in which the trains of symptoms complained of have been almost identical and in which the result of microscopic examination of the secretion from the culdesac has rarely varied.

The patients, invariably women, complain of vision frequently being blurred, inability to use the eyes for any length of time for near vision, and severe itching of the lids which frequently is intolerable. The slightest rubbing of the lids produces quite marked bulbar hyperemia and only aggravates the itching. In severe cases the lids frequently appear quite edematous from the constant hard rubbing. There is a mucilaginous secretion in varying amounts, which when being removed pulls out in long strings and is quite elastic. Microscopic examination of the secretion reveals great numbers of epithelial cells, in the midst of which or surrounding which are found masses of what appear to be pentagonal crystals, the majority having a central black spot which may be brought out more plainly by slight changes with the fine adjustment. In a few cases there are many fine amorphous crystals disseminated throughout the mass of epithelial cells, and pentagonal crystal-like bodies, but these are not constant. Micro-organisms are conspicuous by their absence.

Smears taken from these cases have been shown to a number of pathologists, bacteriologists and chemists and the symptoms described, but a satisfactory explanation has never been given. Many suggested that the "crystals" might be secreted by the lacrimal gland, others that they were artefacts. Last fall slides prepared from secretion taken from the eyes of two sisters having the usual train of symptoms were submitted to Dr. C. H. Bunting, professor of pathology of the University of Wisconsin College of Medicine, who writes:

> "After trying various solvents I found that strong alkalies caused the crystals to swell and become spherical with a doubly contoured wall. When they swelled enough to rupture, iodin showed that they discharged soluble starch into the surrounding fluid. So you are dealing with plant-cells, probably from some face-powder. They are not lycopodium."

After examination of various face- and dusting-powders, Dr. Bunting reported as follows:

> "Your 'crystals' come from rice-powder. I think they must be the cells that form the hard exterior, but I have not determined that. I have looked over your samples of face-powder and rice-powder and find the small amorphous crystals, mentioned in your letter, in the face-powder and not in the rice-powder. They do not seem to be organic in nature and are not easily soluble in cold water (if at all), but they seem in a hopeless minority as compared to the rice-cells. I am not chemist or crystallographer enough to tell what they are. They seem so minute, as a rule, in comparison to the size of the rice-starch, and so few, I should be inclined to view the latter as the irritating agent."

On inquiry the face-powder used was found to have been made by Roger & Gallet. Seven other patients in whom the same symptoms and microscopic conditions were found all used the same make of face-powder.

In all probability when powder is applied to the face with a puff a portion of the fine dust is driven upward and lodges on the moist conjunctiva. The rice-flour in the presence of the tears becomes mucilaginous in character and is not washed from the culdesac. The woody cells of the hard exterior of the rice-grain swell, and the angular corners produce the conjunctival irritation, which is aggravated by rubbing. Those who use a chamois-skin in applying the powder are less liable to cause the fine dust to arise, which probably accounts for the condition not being found in every person using face-powder.

The condition is quickly relieved by flushing the culdesac with boric or normal salt solution and the use of an ointment made up of equal parts of lanolin and petrolatum, which seems to cause an agglutination of the cells and permit their being easily flushed out; 0.5 per cent. yellow oxid of mercury salve is usually prescribed. The irritation quickly subsides under a sedative collyrium.

Nelson M. Black, M.D., Milwaukee, Wis.

### A Case of Voluntary Control of Ascent and Descent of Testicles

*To the Editor:*—While I was engaged in some routine work for one of our charitable organizations, a boy aged 12 was brought to me for medical inspection. The possibility of the necessity of circumcision is always entertained in the work of this society, and accordingly the youngster was made to expose his genitalia. Phimosis was present, but in addition the scrotum was observed to be empty; and the observation was confirmed by palpation; nowhere were even the most rudimentary testicles to be felt. The boy was asked if they had ever come down, to which he replied that they did but that he put them back again. He further volunteered to bring them down for me if I desired, and by a little manipulation of the abdominal wall and contraction of the abdominal muscles, each testicle appeared in its proper place. Each had to be brought down separately, but neither could be said to be thoroughly developed in proportion to the boy's general physical development. In order to display his accomplishments further, he proceeded to replace the testicles in the abdomen, and when he had finished, neither could be palpated. When asked why he did this, he said he played rather roughly and he did it to protect himself from injury. The possibility of injury, in his case especially, was very remote on account of the small size of the organs, but subsequent inquiry determined the fact that it was one of the several feats he learned while in contact with a group of juvenile delinquents.

Samuel Horton Brown, M.D., Philadelphia.

# Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

## POISONING BY WILD PARSNIP

*To the Editor:*—Kindly let me know the nature of the poison of the wild parsnip and the treatment of poisoning caused by it. I have lately read of several fatalities from eating it. Some time ago I had a family all of whom were made ill by eating the cooked wild parsnip. They recovered with emetics, purgatives and stimulants. Is it more poisonous when uncooked?

W. J. LeRossignol, M.D., Rifle, Colo.

*To the Editor:*—Please find enclosed a clipping from the Denver *Post*, March 30, 1914, with reference to poisoning by wild parsnip. I shall be glad to receive any information which you can give about the wild parsnip. We have had three cases with two deaths within the last three weeks.

H. B. Catron, M.D., Englewood, Colo.

Answer.—The wild parsnip belongs to the genus *Cicuta*, which is closely related to the genus *Conium*, from which the official drug conium is derived. The European variety, *Cicuta virosa*, is called white or water-hemlock or cowbane, wild or spotted parsley or parsnip, brook-tongue, death-in, etc., and the American variety, *C. maculata*, is known as wild or American water-hemlock, spotted hemlock, cowbane, spotted parsley, wild parsnip, beaver, muskrat or musquash root or poison, children's death or children's bane. Both species are used to some extent in medicine and both are responsible annually for several cases of fatal poisoning, chiefly of children. *Cicuta maculata* is a common water-weed with a thick, hollow, glaucous-purple, somewhat spotted stem, which sometimes reaches a height of 8 feet and branches strongly, the ascending branches terminating in large umbels of white flowers. The important active constituent is said to be cicutoxin except in the fruit, in which it is replaced by cicutin, which is believed to be identical with coniin. The fleshy roots are often mistaken for Jerusalem artichokes or other edible tubers. As coniin is a volatile alkaloid it is probable that enough might be volatilized in the process of cooking to make the cooked product less poisonous than the uncooked. Nevertheless, reports of cases in which the cooked roots were used indicate that the results were as violent when the roots were eaten after cooking as when they were taken uncooked. Five cases have been reported in which the plant *Cicuta aquatica* was used for the relief of itching with the result that all developed toxic symptoms and two children died. An account of the plant, a description of the symptoms of poisoning, and a review of reported cases, are given by Egdahl (A Case of Poisoning Due to Eating Poison-Hemlock, *Arch. Int. Med.*, March, 1911, p. 348).

The treatment of such poisoning is well outlined by Dr. LeRossignol in his communication. The stomach should be emptied by an emetic or by the use of the stomach-tube, a mild purgative given and stimulants administered as they seem to be required. The hypodermic use of strychnin would be appropriate unless convulsions were present.

### ARTICLES AND BOOKS ON LEAD-POISONING

*To the Editor:*—I should like to have references to literature on the subject of lead-poisoning; prevention in smelters and manufacturing plants; treatment; acute and chronic lead-poisoning, and so-called "lead colic."

G. T. GOSSARD, M.D., Loraine, Ill.

ANSWER.—The following articles and books discuss these questions:

Carlson, A. J., and Woelfel, A.: The Solubility of Lead Salts in Human Gastric Juice, and Its Bearing on the Hygiene of the Lead Industries, THE JOURNAL, July 19, 1913, p. 181.

Lead-Poisoning, Therapeutics, THE JOURNAL, Sept. 6, 1913, p. 772.

The Toxicity of White Lead, Current Comment, THE JOURNAL, Feb. 22, 1913, p. 603.

Household Lead-Poisoning, Paris Letter, THE JOURNAL, April 19, 1913, p. 1239.

Lead-Poisoning, Bull. 95, Bureau of Labor, Washington, D. C., 1911.

Oliver, T.: Dangerous Trades, New York, E. P. Dutton & Co., price, $8.

Legge, M.: Lead-Poisoning and Lead Absorption, New York, Longmans, Green & Co., price, $3.50.

Rambousek, J.: Industrial Poisoning from Fumes, Gases and Poisons of Manufacturing Processes, New York, Longmans, Green & Co., price, $3.50.

Blackey, H. B.: Occupational Diseases, *Ohio State Board of Health Month. Bull.*, March, 1913.

Mayo, Earl: The Work That Kills, *Outlook*, Sept. 23, 1911.

Chronic Lead-Poisoning, published by State Board of Health of Maine.

Stitt, E. R.: Lead-Poisoning from Inhalation of Red-Lead Dust, *U. S. Naval Med. Bull.*, vi, No. 2.

Schoenfeld, J.: Importance of Examination of the Blood in Lead-Poisoning, *Med. Klin.*, May 18, 1913.

Carlson, A. J., and Woelfel, A.: Solubility of White Lead in Human Gastric Juice, and Its Bearing on Hygiene of Lead Industries, *Am. Jour. Pub. Health*, August, 1913.

Kenney, J. S.: Lead-Poisoning in New York City, *Med. Rec.*, New York, Sept. 6, 1913.

Mellon, R. R.: Relation of Fatigue to Paralysis Localization in Plumbism, *Arch. Int. Med.*, October, 1913, p. 398.

Oliver, T.: Preventive and Curative Treatment of Industrial Lead-Poisoning, *Lancet*, London, Aug. 23, 1913.

Zondek, H.: Radial Paralysis from Lead-Poisoning, *Med. Klin.*, Oct. 26 and Nov. 2, 1913.

Lian, C., and Marcorel, E.: The Bradycardia of Lead-Poisoning, *Presse méd.*, Feb. 8, 1913.

Eichhorst, H.: Lead-Poisoning and Spinal Cord Disease, *Med. Klin.*, Feb. 9, 1913.

Althoff, H.: Lead-Poisoning in Workers on Brass, *München. med. Klin.*, March 11, 1913.

Decastello, A., and Oeznacki, A.: Acute Lead-Poisoning, *Med. Klin.*, April 6, 1913.

Gibson, J. L.. Wassermann Reaction in Lead-Poisoning, April 5, 1913.

Chase, R. G.: Case of Chronic Lead-Poisoning in Which Multiple Aneurysms Occurred, *Brit. Med. Jour.*, April 26, 1913.

### REQUIREMENTS FOR EXAMINER IN LUNACY IN NEW YORK STATE

*To the Editor:*—Please give the requirements for examiner in lunacy in New York State.

MAX SCHULTZ, M.D., Brooklyn.

ANSWER.—See Chapter 27 of the Consolidated Laws of New York, Article 4, under the head "Commitment, Custody and Discharge of the Insane," Paragraph 81, "Medical Examiners in Lunacy; Certificates of Lunacy": The certificate of lunacy must show that the person alleged to be insane is insane, and must be made by two reputable physicians, graduates of an incorporated medical college, who have been in the actual practice of their profession at least three years, and have filed with the commission a certified copy of the certificate of a judge of a court of record showing such qualifications in accordance with forms prescribed by the commission. The physicians shall jointly make a final examination of the person alleged to be insane within ten days next before the granting of the order. The date of the certificate of lunacy shall be the date of the joint examination. The certificate of lunacy shall be in the form prescribed by the commission and shall contain the facts and circumstances on which the judgment of the physicians is based, and show that the condition of the person examined is such as to require care and treatment in an institution for the care, custody and treatment of the insane. Neither of the physicians shall be a relative of the person applying for the order, or of the person alleged to be insane, or a manager, superintendent, proprietor, officer, stockholder, or have any pecuniary interest, directly or indirectly, or be an attending physician in the institution to which it is proposed to commit the person alleged to be insane.

### ARTICLES ON ANAPHYLACTIC DEATH

*To the Editor:*—Please inform me from your literature index where I can find the reports of sudden anaphylactic death in patients after the injection of serum. I understand that there have been reported about twenty such cases although I have no references.

CLARENCE H. PAYNE, Chicago.

ANSWER.—The following is a list of articles on this subject:

Schultz, W. H.: Physiologic Structures in Anaphylaxis, *Hyg. Lab. Bull., 80*, 1912.

Anaphylaxis, editorial, THE JOURNAL, April 22, 1911, p. 1199.

Friedberger, E.: Anaphylaxis, *Deutsch. med. Wchnschr.*, March 16, 1911; abstr., THE JOURNAL, April 22, 1911, p. 1232.

Infection and Anaphylaxis, editorial, THE JOURNAL, March 11, 1911, p. 746.

Grinnan, S. G. T.: Anaphylaxis, THE JOURNAL, Jan. 20, 1912, p. 178.

Meillere, G.: Anaphylaxis, *Med. Press and Circ.*, Dec. 6, 1911.

Shaw, H. B.: Anaphylaxis in Relation to Certain Clinical Manifestations, *Practitioner*, London, December, 1911.

Hektoen, L.: Allergy or Anaphylaxis in Experiment and Disease, THE JOURNAL, April 13, 1912, p. 1081.

Anaphylaxis, Paris Letter, THE JOURNAL, Nov. 16, 1912, p. 1807.

Gallagher, J. F.: Anaphylaxis, *Jour. Tennessee State Med. Assn.*, October, 1912.

Gillette, H. F.: Diphtheria Antitoxin in Bronchial Asthma, THE JOURNAL, Jan. 4, 1908, p. 40.

Boone, E. L.: Sudden Death Following Use of Diphtheria Antitoxin, THE JOURNAL, Feb. 8, 1908, p. 453.

Patterson, F. J.: An Attempted Explanation of Sudden Death Subsequent to Injections of Antitoxin, *Carolina Med. Jour.*, March, 1908.

Stephens, L. C.: Have the Recently Reported Deaths from Diphtheria Antitoxin Been Satisfactorily Explained? *Jour. South Carolina Med. Assn.*, December, 1909.

Miller, F. C. L., and Root, W. W.: Serum Sickness and Sudden Death Following Hypodermic Administration of Antitoxin, *Therap. Gaz.*, February, 1910; abstr., THE JOURNAL, March 19, 1910, p. 1006.

Auer, J., and Lewis, P. A.: Acute Anaphylactic Death in Guinea-Pigs, THE JOURNAL, Aug. 7, 1909, p. 458.

*Hyg. Lab. Bull 80* has a good bibliography. References may also be made to *Hyg. Lab. Bulls. 29, 36, 45, 50 and 64*

### BENZIDIN TEST AND THREAD TEST

*To the Editor:*—Please describe (1) the benzidin test and (2) the thread test in ulcer of the stomach.

WILLIAM H. WALKER, M.D., Kansas City, Kan.

ANSWER.—1. The benzidin test should be preceded by abstinence from meat or other sources of hemoglobin for at least two days. The feces are then examined as follows: The stool is extracted with a mixture of alcohol and ether. The residue is then treated with glacial acetic acid and with ether, as in the other tests for occult blood. This acid ethereal extract, which contains the hematin, is then treated with 2 c.c. of a saturated alcoholic bezidin solution and 2 c.c. of a solution of hydrogen dioxid (3 per cent.). In the presence of blood an intense green color appears. Failure of the green color indicates the entire absence of blood.

2. The thread test is performed by having the patient swallow an Einhorn duodenal bucket. The bucket is allowed to remain in the duodenum over night. On removal, a portion of the thread which is attached to the bucket will be stained with blood. (Bassler recommends that the thread be attached to a split shot.) Such a stain indicates the presence of an ulcer. The thread test for acidity was described Feb. 14, 1914, p. 579.

### PHENOLPHTHALEIN

*To the Editor:*—1. Can phenolphthalein be taken indefinitely without injurious results?

2. What is its true value as a laxative?
3. How does it act?
4. Does its prolonged use require increased dosage?
5. Can it be administered with or in combination with sodium chlorid?

H. S. BARTHOLOMEW, M.D., New York.

ANSWER.—1. So far as we know, no toxic or injurious results have been reported from the continued use of phenolphthalein in medicinal doses. A case of poisoning from taking 1 gm. is reported.

2. It acts as a purgative, does not gripe and appears to possess no further physiologic action.

3. It acts chiefly by stimulating peristalsis, but also increases secretion to some extent.

4. Prolonged use does not seem to require increased dosage.

5. It may be administered with sodium chlorid.

Phenolphthalein is described in N. N. R., 1914, p. 206.

# Medical Economics

This Department Embodies the Subjects of Post-graduate Work, Contract Practice, Legislation, Medical Defense, and Other Medicolegal and Economic Questions of Interest to Physicians

## THE HARRISON BILLS AND THE NELSON AMENDMENT

Mention has previously been made in The Journal of the so-called "Harrison bills" for the regulation of the traffic in habit-forming drugs. The first two measures, H. R. 1967 and H. R. 1966, have passed both houses of Congress and have become laws. They prohibit the importation of opium for other than medicinal purposes and forbid the manufacture of smoking-opium in the United States. The third bill, H. R. 6282, is an effort to regulate the sale of habit-forming drugs in the United States, by imposing a special tax on all persons who deal in or handle opium or coca leaves or their derivatives.[1]

### HOW THE BILL PASSED THE HOUSE

There has not been, at any time, any opposition on the part of individual physicians or of the medical profession as a class to the proper regulation of the sale of habit-forming drugs and the restriction of this traffic to purely legitimate purposes. H. R. 6282, as it passed the House, provided that any person "who produces, imports, manufactures, compounds, deals in, dispenses, sells, distributes or gives away opium or coca leaves or any compound, manufacture, salt, derivative or preparation thereof" shall register with the internal revenue collector of his district. A provision in the second section specifies that nothing contained in the section "shall apply to the dispensing or distribution of any of the aforesaid drugs to a patient by a physician, dentist or veterinary surgeon, registered under this act, in the course of his professional practice only, provided, that such physician, dentist or veterinary surgeon shall personally attend on such patient."

### SENATE AMENDMENTS

The language of the bill as it passed the House was the result of long and careful deliberation on the part of all those interested in the bill and in a proper regulation of the sale of habit-forming drugs. It would seem to be unwise at the present stage of the bill's progress to introduce changes which do not materially strengthen the bill or add clearness to its provisions. Several amendments, however, have been introduced in the Senate. One includes hypodermic syringes and needles as forbidden articles of sale. Another substitutes for the proviso that physicians shall be in attendance on the patient, the following: "Provided that such physician, dentist or veterinary surgeon shall have been specially employed to prescribe for the particular patient receiving such a drug; and provided further that such drug shall be dispensed in good faith and not for the purpose of evading the provisions of this act." This amendment simply requires special employment instead of personal attendance as the test of bona-fide professional services and is not in any way objectionable.

A most important amendment, however, was introduced by Senator Nelson of Minnesota: "After the word 'act' add the following words: 'and provided further that such physician, dentist or veterinary surgeon shall keep or cause to be kept a list of names and addresses of all persons to whom the aforesaid drugs were so administered, and the date thereof, and shall preserve such names and addresses for a period of two years from the dates thereof in such a way as to be readily accessible to inspection by the officers, agents, employees and officials hereinbefore mentioned.'"

### PRESENT STATUS OF THE BILL

The bill has been reported by the Finance Committee of the Senate; it is now on the Senate calendar and may be called up at any time. Any amendments to the bill, including that offered by Senator Nelson, will not be referred to the Finance Committee but will be either adopted or rejected on the floor of the Senate. The bill has already passed the House, so that if it passes the Senate in a form in any way different from that in which it passed the House, it will have to go to a conference committee in order to eliminate the points of difference.

Without doubt, Senator Nelson, who introduced the proposed amendment, did so without any purpose of restricting the physician in his practice or of placing any unnecessary or burdensome regulations on the medical profession. The object of the amendment, in Senator Nelson's mind, is obvious. It is intended to require a record of all habit-forming drugs dispensed by physicians, in order that all opium, morphin or cocain preparations can be checked and their final disposition traced. While it would undoubtedly be burdensome and require a considerable amount of unnecessary work for the practicing physician to keep a record of all persons to whom he administered any drugs containing opium, morphin or cocain, this would hardly be a valid objection to the provision, provided it could be shown that a commensurate advantage accrued to the public in the form of protection of life and health and the prevention of the formation of drug habits. Aside from annoyance and added work, the medical profession, as such, has nothing to lose by the adoption of such an amendment. Its adoption, however, would seriously affect the public health and endanger the well-being of the individual patient, in that it would tend to prevent a physician from dispensing or distributing to his patients any of the drugs named. Any interference with the liberty of the physician to prescribe or administer such drug preparations as the patient may need can only have one of two effects: Either the patient will fail to receive such drugs as his condition may require at the hands of the physician, or the patient will secure such drugs in other forms, independent of the physician, and will take them on his own responsibility. If the physician is allowed only to "administer" these preparations in person rather than to dispense or prescribe them, then it can only mean that the physician will have to call more frequently on the patient in order to comply with the law, and that the expense for professional attendance will thereby be increased. If, on the other hand, the physician is not permitted to dispense or distribute to his patients those drugs enumerated in the bill, then the public will soon learn this fact and families will provide themselves with such preparations for use on their own responsibility. In either case the principal object of the bill, namely, the reduction and restriction of the illicit and improper use of habit-forming drugs, will not be in any way advanced.

### BILL A LEGAL SUBTERFUGE

The Harrison bill as it passed the House was the result of long consideration and discussion. It is an effort on the part of the federal government to control, through its tax-levying power, traffic in a product, the use of which the government is seeking to restrict for moral and social reasons. The plan followed in this particular is somewhat similar to that in the case of the Esch phosphorus bill, which became a law last year, in which the use of white phosphorus for the manufacture of matches was practically prohibited by levying a tax which was so high as to be equivalent to prohibition. The federal government has no jurisdiction over the sale of either phosphorus matches or habit-forming drugs inside state boundaries. It can, however, under the guise of a tax-levying measure, prescribe the conditions under which such products shall circulate in interstate commerce. The regulation of industries or the correction of an evil by state legislation is notoriously slow and lacking in effectiveness on account of lack of uniformity in the state laws enacted. Federal legislation for the correction of an obvious evil is much preferable if it can be legally accomplished. The Harrison bill, however, like the Esch phosphorus law, is legally a subterfuge and as such presents marked difficulties in the formulation of effective provisions.

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[1] Detailed accounts of these bills appeared in The Journal, Jan. 25, 1913, p. 310, Aug. 2, 1913, p. 360, and Jan. 24, 1914, p. 316.

PHYSICIAN IN FAVOR OF DRUG RESTRICTION

The medical profession, both as individuals and as a body, strongly favors national legislation for the correction of the improper sale and use of habit-forming drugs. No one knows better than the conscientious physician the harm done to the individual and the community by the use of opium and cocain. Every reputable and honorable physician will heartily endorse and enthusiastically cooperate in the enforcement of any law which will prevent the improper use of these drugs, of enormous benefit to suffering humanity when properly administered by scientifically educated men, but of terrible destructiveness when used without justification or proper supervision. No class of men will so heartily cooperate in enforcing such a law as will the reputable physicians of the country; none is so vitally necessary for its successful administration. To place an unnecessary and ineffective burden of administrative detail on the very class through whose cooperation the enforcement of the measure must come, is not only unwise but seriously impairs the successful accomplishment of the purposes of the bill. It is difficult to see how such a provision as that contained in Senator Nelson's amendment could be enforced.

KILLING A BILL BY IMPOSSIBLE AMENDMENTS

It has often occurred that the opponents of legislation when unable to defeat a measure by open attack have killed the bill by amendments seemingly good but designed to arouse antagonism against the whole measure or to make the law ineffective by introducing an unenforcible provision. There is no question that the opposition to this bill, as in many other instances of reformatory legislation, is vitally interested in preventing the restriction of the sale and use of habit-forming drugs largely on account of the large revenues derived from their illegitimate use. These interests would like something on which to base the statement that the medical profession is opposed to the regulation of the sale and use of habit-forming drugs. If professional opposition could be aroused by the introduction of some unnecessary and hampering restriction on physicians, whether or not the restriction was important to the success of the bill, the chances of defeating the bill would be greatly increased. Such tactics have been successfully used in other campaigns.

We feel sure that Senator Nelson had no such object in introducing this amendment. That it would work out practically in this way seems clear. Requiring practicing physicians to keep a separate record would only be burdensome to physicians and would in no way increase the effectiveness of the law. As the plain object and methods provided for in the bill as it passed the House are seriously impaired and confused by the Senate amendment, it is earnestly to be hoped that this amendment will not be pushed to adoption in the Senate, but that the bill, which in various forms has been repeatedly before Congress for the last five or six years, may become a law practically as it passed the House. Even in this form there will probably be difficulties in interpreting and administering it. Probably further amendments and modifications will be necessary, but as the bill passed the House, it represents the best form in which legislation on this difficult and perplexing subject has yet been framed.

Let it be clearly understood that the medical profession, the American Medical Association and THE JOURNAL of the American Medical Association are in hearty sympathy with the general object of the Harrison bill, namely, the restriction of the sale and use of habit-forming drugs to the minimum required for the proper treatment of human ailments. It is in the hope that this object may be most successfully accomplished and that the law as enacted may be one that is practicable and capable of enforcement, that THE JOURNAL expresses the hope that the amendment introduced by Senator Nelson may not be made a part of the finally enacted law.

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**Study of Medical History.**—"How true it is that in reading this history one finds modern discoveries that are anything but discoveries, unless one supposes that they have been made twice."—Dujardin: Histoire de la Chirurgie, Paris, 1774.

# *Medical Education and State Boards of Registration*

## COMING EXAMINATIONS

ARKANSAS: Little Rock, May 12. Sec., Dr. W. S. Stewart, Suite 404 Citizens Bk. Bldg., Pine Bluff. Homeopathic: Little Rock, May 12. Sec., Dr. I. J. Brooks, 219 East 10th St., Little Rock. Eclectic: Little Rock, May 12. Sec., Dr. C. E. Laws, Ft. Smith.

CANADA: Alberta, April 24. Dr. Cecil E. Race, Registrar of the University of Alberta, Edmonton.

ILLINOIS: Coliseum Annex, Chicago, May 12-14. Sec., Mr. Amos Sawyer, Springfield.

LOUISIANA: New Orleans, May 4. Homeopathic Board, Sec., Dr. Edward Harper, 702 Macheca Bldg., New Orleans.

MASSACHUSETTS: Boston, May 12-14. Sec., Dr. Walter P. Bowers, Room 159, State House, Boston.

NEBRASKA: Lincoln, May 27. Sec, Dr. H. B. Cummins, Seward.

NEVADA: Carson City, May 4. Sec., Dr. Simeon L. Lee, Carson.

NEW YORK: May 19-22. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

TENNESSEE: Memphis, Nashville and Knoxville, first week in May. Sec., Dr. A. B. DeLoach, Memphis.

WEST VIRGINIA: Charleston, April 21. Sec., Dr. S. L. Jepson, 81-12th St., Wheeling.

## Virginia Board Elects Officers

At a meeting of the Virginia State Board of Medical Examiners held recently, the following officers were elected: president, Dr. R. S. Martin, Stuart; vice-president, Dr. J. E. Warriner, Richmond, R. F. D. No. 4; secretary-treasurer, Dr. J. N. Barney, Fredericksburg. The former secretary, Dr. Herbert Old, could not accept reelection since he expects to reside out of the state.

## Connecticut Homeopathic Report

Dr. Edwin C. M. Hall, secretary of the Connecticut Homeopathic Medical Examining Board, reports the special written examination held at Norwich, Jan. 4, 1914. The number of subjects examined in was 7; total number of questions asked. 70; percentage required to pass, 75. One candidate, a graduate of the New York Homeopathic Medical College and Hospital in the year 1913, was examined and passed with a grade of 83. One candidate, a graduate of the New York Homeopathic Medical College and Hospital in the year 1902, was granted a license through reciprocity with New York.

## Indiana January Report

Dr. W. T. Gott, secretary of the Indiana Board of Medical Registration and Examination, reports the written examination held at Indianapolis, Jan. 12-14, 1914. The number of subjects examined in was 16; total number of questions asked. 100; percentage required to pass, 75. The total number of candidates examined was 12, including 2 osteopaths, of whom 11 passed, including 2 osteopaths, and 1 failed. Twenty-three candidates were licensed through reciprocity. The following colleges were represented:

| PASSED<br>College | Year Grad. | Per Cent. |
|---|---|---|
| Bennett Medical College | (1913) | 89.8 |
| Chicago College of Med. and Surg. | (1913) | 87, 90.2 |
| Northwestern University Medical School | (1912) | 84 |
| University of Illinois | (1913) | 83.5 |
| University of Louisville | (1913) | 76.1 |
| St. Louis University | (1913) | 85.7 |
| Miami Medical College | (1902) | 84 |
| University of Athens, Greece | (1904) | 84.3 |
| FAILED | | |
| Hahnemann Med. College and Hosp. of Chicago | (1913) | 71.1 |

LICENSED THROUGH RECIPROCITY

| College | Year Grad. | Reciprocity with |
|---|---|---|
| Medical College of Georgia | (1911) | Georgia |
| Bennett Medical College | (1912) | Michigan |
| Chicago College of Medicine and Surgery | (1911) | Illinois |
| Chicago College of Physicians and Surgeons | (1911) | Illinois |
| Jenner Medical College | (1906, 2) | Illinois |
| ospital of Chicago | (1911) | Tennessee |
| dical School (1903) Illinois; | (1910) | |
| (1910) Missouri; | (1911) | Illinois |
| | (1905) | Kansas |
| Louisville | (1906) | Kentucky |
| | (1911) | Kentucky |
| | (1910) | Maryland |

| | | |
|---|---|---|
| University of Maryland | (1909) | Maryland |
| Saginaw Valley Medical College | (1899) | Michigan |
| University of Michigan, Dept. of Med. and Surg. | (1913) | Michigan |
| St. Louis University | (1912) | Missouri |
| Cornell University | (1906) | Ohio |
| Medical College of Ohio | (1898) | Kentucky |
| Western Reserve University | (1898) | Illinois |

### Iowa January Report

Dr. Guilford H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports the written examination held at Des Moines, Jan. 6-8, 1914. The number of subjects examined in was 8; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 14, of whom 13 passed and 1 failed. Three candidates were licensed through reciprocity. The following colleges were represented:

PASSED

| College | Year Grad. | Per Cent. |
|---|---|---|
| Bennett Medical College | (1906) | 78.1 |
| Chicago College of Med. and Surg. (1911) 77; | (1913) | 88.6 |
| Northwestern University | (1912) | 87.7 |
| Rush Med. College (1898) 93.7; (1912) 86.5, 93; | (1913) | 87 |
| University of Illinois (1912) 86.2 | (1913) | 92.2 |
| Keokuk Med. Coll., Coll. of Phys. and Surgs. | (1906) | 77.9 |
| St. Louis College of Physicians and Surgeons | (1910) | 78.2 |
| University of Innsbruck, Tyrol, Austria | (1910) | 80.2 |

FAILED

| | | |
|---|---|---|
| St. Louis College of Physicians and Surgeons | (1906) | 70 |

LICENSED THROUGH RECIPROCITY

| College | Year Grad. | Reciprocity with |
|---|---|---|
| Indiana Medical College | (1906) | Indiana |
| John A. Creighton Medical College | (1911) | Nebraska |
| Lincoln Medical College | (1908) | Nebraska |

### Missouri Reciprocity Report

Dr. J. A. B. Adcock, secretary of the Missouri State Board of Health, reports that 16 candidates were licensed through reciprocity from Jan. 1 to Feb. 27, 1914. The following colleges were represented:

LICENSED THROUGH RECIPROCITY

| College | Year Grad. | Reciprocity with |
|---|---|---|
| Howard University | (1912) | Kansas |
| National Medical University, Chicago | (1896) | Illinois |
| Medical College of Indiana | (1905) | Indiana |
| University of Kansas (1907) (1910) | (1912) | Kansas |
| Hospital College of Medicine, Louisville | (1898) | Kentucky |
| Kentucky School of Medicine (1890) Kansas | (1900) | Kentucky |
| University of Louisville (1910) | (1912) | Kentucky |
| Boston University | (1910) | Illinois |
| Johns Hopkins University (1910) | (1911) | Maryland |
| Lincoln Medical College | (1907) | Nebraska |
| Jefferson Medical College | (1910) | Penna. |

### New Mexico January Report

Dr. W. E. Kaser, secretary of the New Mexico Board of Health and Medical Examiners, reports the written examination held at Santa Fe, Jan. 12, 1914. The number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 4, of whom 2 passed and 2 failed. Ten candidates were licensed on credentials and 3 were licensed through reciprocity. The following colleges were represented:

PASSED

| College | Year Grad. | Per Cent. |
|---|---|---|
| University of Nashville | (1903) | 81 |
| Fort Worth School of Medicine | (1910) | 92 |

FAILED

| | | |
|---|---|---|
| American Medical College | (1913) | 70.6 |
| University of Tennessee | (1913) | 73.6 |

LICENSED ON CREDENTIALS

| | | |
|---|---|---|
| Denver and Gross College of Medicine | (1905) | |
| College of Physicians and Surgeons, Chicago | (1905) | (1906) |
| University of Louisville | (1907) | |
| Harvard Medical School | (1870) | |
| Columbia Univ., Coll. of Phys. and Surgs., N. Y. | (1903) | (1911) |
| New York Homeo. Med. Coll. and Hosp. | (1913) | |
| Medico-Chirurgical Coll. of Philadelphia | (1899) | |
| National School of Medicine, Mexico | (1885) | |

LICENSED THROUGH RECIPROCITY

| College | Year Grad. | Reciprocity with |
|---|---|---|
| Eclectic Medical College, Cincinnati | (1905) | Oklahoma |
| University Medical College, Kansas City | (1908) | Oklahoma |
| Eclectic Medical College, Kansas City | (1900) | Oklahoma |

## *Book Notices*

School Health Administration. By Louis W. Rapeer, M.A., Ph.D., New York Training School for Teachers. Cloth. Price, $2.15. Pp. 360. New York: Teachers College, Columbia University, 1913.
Medical and Sanitary Inspection of Schools. For the Health Officer, the Physician, the Nurse and the Teacher. By S. W. Newmayer, A.B., M.D., in Charge of the Division of Child Hygiene, Bureau of Health, Philadelphia. Cloth. Price, $2.50 net. Pp. 318, with 85 illustrations. Philadelphia: Lea & Febiger, 1913.

These two books should be in the hands of every public health officer and medical school inspector. One may not agree with all the conclusions of the authors, but they are a distinct contribution to the literature of medical school inspection, both on account of the information contained and the personal views advanced. Rapeer's book is naturally stronger on the educational side since he approaches the problem from the point of view of a teacher rather than from that of a physician. His purpose is to present to the reader what American cities are doing for national health and vitality through the public schools, and how this work may be made more efficient. To the writer's extensive personal experience is added a study of data collected by the Child Hygiene Department of the Russell Sage Foundation, embracing over one thousand graded school systems. The first part of the book discusses the national and school health problem, considering the public school health situation as a part of the general national problem of public health and the prevention of avoidable diseases. The second part takes up the specific question of how educational hygiene is being promoted in twenty-five of our cities, discussing the question under the heads of "Administration"; "Nature and Efficiency of the Work Done"; "Ailments from Which Public Schoolchildren Suffer"; "Special Phases of Medical Inspection in Different Cities," and "Physical Education for the Improvement of the Physical Condition of Schoolchildren." The third and last part of the book is given to an outline of an ideal plan of administration, which can be used as a model, containing as it does the best methods which have been developed in different cities.

Dr. Newmayer naturally discusses the subject from the point of view of the inspector and physician rather than from that of the superintendent and educator, considering the subject under the heads of "Administration," "Building and Grounds," "Infectious, Contagious and Communicable Diseases" and "Physical Defects." The author endeavors to prepare a guide for physicians, nurses and teachers which can be followed in the physical examination of schoolchildren. Dr. Newmayer's book will appeal more to the medical inspector, while Rapeer's will be more appreciated by the superintendent or public school member. Both of these volumes, however, can be read with profit by all those interested in the subject. A considerable table of references to recent authorities is to be found in each.

Workmen's Compensation. Report on Operation of State Laws. Investigation by Commission of the American Federation of Labor and the National Civic Federation. Commission's Findings. Views of Employers and Workmen, Digest of Laws, Rules of State Boards of Award. Paper. Senate Document No. 419, 63d Congress, 2d Session. Washington: Government Printing Office. 1914.

The Commission of the American Federation of Labor and the National Civic Federation on the workmen's compensation laws have reported as a senate document on the various states which have enacted such legislation. It was the purpose of the commission to ascertain the facts with regard to the operation of the workmen's compensation laws rather than to report on theories or to make recommendations. The lack of complete statistics regarding the working of the laws in all of the states has prevented the most accurate conclusions, but it is believed the study will prove valuable to all of the states which have not yet enacted such laws, and also to those having such laws as affording a basis for further amendment. The commission found that more than five million workmen are now operating under the compensation laws in the various states and several million more will soon come under the provisions of the statutes already enacted but not yet in force. One of the features which has interfered with the highest possible benefit of these compensation laws has been the lack of adequate appropriations for their enforcement. The commission says, that in those states that have had experience under the law, general satisfaction is given both to employer and employee, and the opinion is generally expressed by those interviewed, that the principle of compensation will soon be the ruling doctrine throughout the country. The laws have improved the relations existing between employer and employee and have had a marked effect on accident prevention by calling attention to the subject and exciting an interest in it. It is said that the difficulties feared by some employers and some workmen that the laws would lead to fraud, deception and malignering on the part of employees and discrimination by employers against certain classes of workmen, have not materialized, but that the laws are easy of administration and fair in their operation.

This report is highly interesting as concerning a radical departure in legislation having to do with the relation of employer and employee. Probably the most salutary influence of such legislation has been the actual saving of life and limb in industrial work through the better safeguards thrown around the workers and the greater care on the part of the workmen themselves, which has been stimulated by the requirements of these laws.

ARBEITEN AUS DEM PHARMAZEUTISCHEN INSTITUT DER UNIVERSITÄT BERLIN. Herausgegeben von Professor Dr. H. Thoms, Direktor des Pharmazeutischen Institutes der Universität Berlin. Tenth Edition. Cloth. Price, 8.50 marks. Pp. 220. Berlin: Urban and Schwarzenberg, 1913.

This volume is the annual report of the pharmaceutical department of the University of Berlin, in charge of Prof. Dr. Thoms, corresponding member of the Association's Council on Pharmacy and Chemistry. The activities of the institute comprise the instruction of pharmaceutical students as well as general lectures including, for instance, one given to justices and state attorneys dealing with milk and milk products. The institute also has a botanic garden in which it is reported the growing of Japanese peppermint was carried out with considerable success, though now the cultivation has been transferred to Germany's African colonies, the institute still controlling the experiments and studying the production of menthol and the yield. In the main, the report is devoted to an account of the scientific work done at the Pharmaceutical Institute, much of which has appeared in current publications during the year. The published work represents a large number of valuable pharmaceutical and chemical investigations, including the examination of a considerable number of proprietary medicines both of the synthetic and of the patent medicine order. As illustrative of the institute's broader scope there appears a detailed account of work in connection with the recent conduct of the Scharmach wood alcohol poisoning prosecution in Berlin. From this it appears that the prosecution depended on the institute for the scientific evidence required in this case.

The report is a credit to the Pharmaceutical Institute of the University of Berlin and to its director, Thoms. It should serve as a suggestion to American universities for the upbuilding of their pharmacy departments.

LONDON PUBLIC HEALTH ADMINISTRATION, A Summary Showing the Principal Authorities, with Their Origin, Services and Powers. By W. McC. Wanklyn, B.A., M.R.C.S., L.R.C.P., Fellow of the Royal Society of Medicine. Cloth. Price, $0.90 net. Pp. 59. New York: Longmans, Green & Co., 1913.

This is a little pocket-manual presenting in tabulated form the principal authorities concerned in the administration of public health in the city of London, with an account of their origin, services and powers. It is intended to present a synopsis of London public health administration in as conveniently condensed and simple a form as possible for foreign visitors. It contains a list of the principal London public health authorities with an account of their origin, a list of the various public health services and a table of the most important public health statistics arranged chronologically. A convenient little addition is the fifteen or twenty blank pages in the back of the book for notes.

# Miscellany

### The Migratory Habit of the Larvae of House-Flies

In Bulletin 14 of the Department of Agriculture, Bureau of Entomology, Robert H. Hutchinson records some interesting observations on the habits of the larvae of the house-fly which may serve as a basis for fly elimination. Levy and Tuck announced as a biologic fact that the house-fly does not pupate in manure if the full-grown larvae can find any means of reaching and entering the earth; but Hutchinson, in an examination of the ground after the removal of heaps of manure, found only a small percentage of larvae beneath the surface, though the nature of the ground would not have prevented such migration, if that were the larval habit. In accordance with a number of other observers, he finds that the larvae manifest a migratory tendency just before pupation, no doubt initiated in response to internal stimuli incident to the maturing of the larval stage and preparatory to the pupal stage. The course and direction of the migration are determined largely by external stimuli. The larvae seem to flee from the moister regions of the manure heap to the comparatively dry regions at its edges which still are protected from the light. If no such dry places are to be found in the manure they will pupate in the ground or in cracks and crevices, under boards or stones, etc. The teleologic explanation of this is that it is an adaptation to afford an easy path to freedom for the adult fly, while allowing for the quickest possible expansion and drying of the wings. Levy and Tuck caught the larvae by taking advantage of this habit; they constructed a maggot-trap by boring holes in or placing wire screen over the bottom of a barrel containing fly-infested manure, through which the larvae, endeavoring to escape, were caught in a tub placed beneath the barrel. Hutchinson modified this experiment by placing water in the pan or tub in which the larvae dropped from the manure receptacle above, and covered the whole apparatus with a fly-proof screen having fly-traps in the top to catch any of the insects that might mature and emerge in that direction. The screen also prevented reinfestation of the manure, which was thoroughly sprinkled with water each day. By this means about 98 per cent. of the larvae were caught and destroyed in the pan containing the water. In another experiment about 99 per cent. of the larvae were destroyed before they reached the pupal stage. These percentages seem to demonstrate the habitual nature of the migration and the feasibility and efficiency of the maggot-trap in preventing fly propagation in manure. It has been found by Hutchinson that a given lot of manure under favorable conditions will rarely contain larvae after ten or twelve days.

### Clinical Diagnoses and Necropsy Findings in Bellevue

Part III of the Report of the Committee on Inquiry into the Departments of Health, Charities, and Bellevue and Allied Hospitals of New York contains some interesting comparisons of the clinical diagnoses and the necropsy findings in the cases of patients dying in the hospital. The comparison was made from the records by Dr. Horst Oertel, formerly chief pathologist of the Russell Sage Pathological Institute, in 388 cases in which post-mortems were held. In 87 of these, or 22.4 per cent., the clinical diagnoses were confirmed; in 116, or 29.9 per cent., the diagnoses were correct but the necropsies disclosed additional important lesions; in 54, or 13.9 per cent., the clinical diagnoses were partially correct but the necropsies revealed other important lesions; in 107, or 27.6 per cent., the clinical diagnoses were not confirmed, in 24, or 6.2 per cent., no clinical diagnoses were recorded in the death records. The clinical diagnoses were therefore confirmed in 52.3 per cent. of the cases and not confirmed in 47.7 per cent. The conclusions drawn by those responsible for the report are "not that the findings of the attending physicians at Bellevue are carelessly made and recorded, but rather that too great reliance is placed on inexperienced house physicians and interns, and also that the current knowledge necessary to make clinical diagnoses which shall approach accuracy is insufficient."

By this is meant that "medical knowledge is not sufficiently advanced to enable physicians to diagnose with great degree of accuracy."

In this connection attention is called in the report to the comparatively small number of necropsies held in Bellevue Hospital. The ruling of the commissioner of charities that under the law all unclaimed bodies must be turned over to the medical colleges for anatomic instruction is largely responsible for this. Under this ruling the number of necropsies held on unclaimed bodies diminished from 263 in 1907 to 102 in 1911, and in 1912 only 12 necropsies were held with such material. Of the necropsies held on bodies by consent of relatives or friends, the number increased from 143 in 1907 to 423 in 1912. This means that necropsies were held on about 10 per cent. of those dying in the hospital, while in the University College Hospital in London, necropsies are performed on 84 per cent., and in the Allgemeines Krankenhaus, Vienna, they amount to 99.9 per cent., and in most of the German hospitals to at least 90 per cent. In the Boston City Hospital they amount to about 9 per cent.; in the Philadelphia General Hospital to 10 per cent. In Johns Hopkins Hospital and some others the percentage is higher, amounting in the hospital named to 62.8 per cent. of the deaths. The committee expresses the opinion that the greater effectiveness of European teaching is largely due to the more adequate post-mortem study.

### *Antituberculosis Work in Pennsylvania*

Pennsylvania is one of the foremost states in caring for its consumptives. In addition to three large and well-equipped sanatoriums there are 114 dispensaries located in towns and cities in the state. The sanatoriums are located at Mont Alto, opened in 1907; Cresson, opened in January, 1913, and one at Hamburg in course of construction. At Mont Alto since 1907 about eleven thousand patients have been treated. Of the 9,925 persons discharged, 329 have been apparently cured, and 2,066 have had the disease arrested. These two classes comprise about 28 per cent. of the total admissions. Nearly 40 per cent., 3,896, have left the institution with their condition improved. At Cresson since the opening of the sanatorium over 1,000 persons have been treated. Every county in the state has at least one dispensary where any person applying who properly fills out the blanks may receive attention. The staff of each dispensary consists of a physician in charge and a nurse, with additional nurses and physicians as required. One of the duties of the nurse is to visit the homes in which there are patients with tuberculosis, and during 1913, 137,858 of such visits were made in the entire state. In a circular letter addressed to physicians, the State Board of Health urges the use of the dispensaries and sanatoriums by tuberculous patients. The state also maintains a laboratory in Philadelphia where specimens of sputum, as well as of the secretions and excretions in other diseases than tuberculosis, may be sent for examination. A booklet describes the laboratory and its work and gives directions for preparing specimens for submission to the laboratory. In addition, in the propaganda against tuberculosis a circular has been prepared for general distribution, giving advice and instruction as to the manner of life and care to be taken by tuberculous persons in order to obtain a cure and to prevent the spread of the disease among the well. A list of the tuberculosis dispensaries is also supplied.

### *First Aid to the Injured*

A lecture on this subject, delivered by W. L. Brown, division surgeon of the El Paso and Southwestern Railway System, to the employees and approved by F. E. Shine, chief surgeon, has been printed in a pamphlet form for circulation as one of the publications of the safety bureau of the road. It contains in simple language directions as to what fellow employees should do in case one of their number is injured. It is first emphasized that some one should immediately take charge and issue directions as to what should be done before the arrival of the surgeon or before removal of the patient to a hospital or elsewhere. Methods of stopping hemorrhage are explained and illustrated, and emphasis is laid on the fact that this must be done in such manner as not to cause gangrene. Warning is given that the wounded person should be kept lying flat and stimulants other than coffee should not be given. Open wounds are not to be touched with the hands and are to remain dry. Directions are given for devising splints and supports from materials at hand in case of fractures and mangling, the improvising of stretchers, etc. Suggestions are given for first aid in burns and eye injuries, and the equipment of an emergency box of small dimensions to be kept at hand in all departments of railroad work. The recommendations and instructions in the pamphlet are extremely practical and would serve almost equally among any class of workmen other than railroad employees.

### Open-Air Treatment of the Insane

The *Institution Quarterly*, a publication of the Public Charity Services of Illinois, for the last quarter of 1913, contains a tabulated statement of the results of an experiment in the Elgin State Hospital in the open-air treatment of the anemic and tuberculous insane. The hospital has a frame, one-story sanatorium building with an open south front. The cottage, which has a capacity of about forty patients, is built and arranged according to the latest ideas for sanatoriums. May 1, 1913, a number of the inmates, men and women, were transferred to this building. Their weights were taken on admission. September 30, nineteen of the women and seven of the men were still present and their weights were recorded. The smallest gain was found to be 4 pounds and the greatest 51½ pounds, the average gain in weight being about 20 pounds.

No difficulty was experienced in maintaining supervision over these persons, and there was little or no attempt at escape. This sanatorium was erected at a cost of $500 per bed and is found to be the most comfortable, the easiest maintained and supervised, as well as the best-ventilated and heated ward in any institution in Illinois, and the patients have shown marked improvement, physically and mentally.

### Casein Obtained by Electrolysis

In *Daily Consular Reports*, summarized by the *Scientific American*, Consul W. H. Hunt, stationed at St. Etienne, France, reports on recent developments in the production and industrial uses of casein. Casein, which is the principal albuminoid matter of milk, is now obtained by electrolysis, according to the following recently invented process: In the middle of a large vat full of skimmed milk heated to a temperature of 80 C. (176 F.), a porous vessel is placed containing a 5 per cent. solution of sodium hydroxid; an iron cathode is plunged into the soda, and a rod of carbon, serving as an anode, into the milk. An electric current sets free the phosphoric acid contained in the milk, and the casein precipitates. As compared with the method of obtaining casein by the use of acids or rennet, the cost of this process is very low, the yield is greater, and the casein produced contains no foreign ingredients. Vegetable casein, now produced on an extensive scale from the soya bean, can be put to the same uses as animal casein. The principal use of casein is in the manufacture of galalith (milk stone), used as a substitute for ivory, tortoise-shell, celluloid, etc. Penholders, frames, purses, phonograph disks, and a great variety of other articles are now made of galalith. It is also used as a chemical fertilizer. Several other casein products have recently been introduced.

**New Diluent for Cow's Milk.**—Dr. W. G. Boorsman of the Pharmacological Laboratory, Java, reports on the use for the dilution of cow's milk in infant-feeding of an emulsion of seeds of the *Canarium commune* L., a tree which is common in the tropical parts of Asia and bears the Malay name of *Kanari*. The tree is cultivated in some places. The seeds are triangular in shape and resemble the almond. They must be used when ripe or nearly ripe. This emulsion prevents the coagulation of casein in large lumps. The dried seeds contain about 75 per cent. oil and 14.5 per cent. albuminous matter, besides some soluble carbohydrate, etc.—*Indian Med. Gaz.*

# Medicolegal

## Construction of Workmen's Compensation Act with Reference to the Furnishing of Medical and Surgical Treatment

*(City of Milwaukee vs. Miller (Wis.), 144 N. W. R. 188)*

The Supreme Court of Wisconsin holds that the legislative requirement in the workmen's compensation act of that state that the employer shall bear the burden of reasonably necessary medical and surgical treatment of his injured employee was not intended as a charity to the one, or as a penalty to the other, but as a recognition of the economic truth that such expense is a legitimate element in the cost of production and should be placed on the product as directly as practicable, using the employer as a necessary first step in that regard.

The amount allowed for reasonable expenses of medical and surgical treatment should be the fair value of the service as such—neither more nor less because of the employer being liable therefor. The burden of proof to establish the reasonableness of such charges is on the employee, and, in case the proof is insufficient, the claim should be proportionately reduced. The reasonableness of an employee's claim being disputed by credible evidence and not supported by other than opinion evidence of the person most interested, the court should apply ordinary common sense and experience to the matter and fix the amount at such sum as appears reasonable; and, where the claim is obviously exorbitant, should not allow it as a whole, however strongly supported it may be by evidence from the mouth of the interested party.

The right of the employer under the workmen's compensation act to furnish reasonably necessary medical and surgical treatment and his liability to the employee for reasonable expense incurred by him, in case the employer unreasonably neglects or refuses to make the proper provision, by necessary implication means that the employer must have reasonable opportunity to furnish the services if the employee is to be entitled to obtain such treatment at the expense of the employer. It also means that the employer must have a reasonable time to provide such services after notice of the need therefor; but an injured employee may obtain medical and surgical treatment at the expense of his employer in the interim between the happening of the injury and the time for notice to the employer of the employee's needs.

## Case in Which Father Not Liable for Medical Services Rendered to Son

*(Sassaman vs. Wells (Mich.), 144 N. W. R. 478)*

The Supreme Court of Michigan reverses, without granting a new trial, a judgment recovered by the plaintiff for medical services rendered to the defendant's son, 19 years of age, while the latter was attending school a few miles away from home, in the same county. The court says that two questions were submitted to the jury: (1) Was the defendant's son emancipated when the debt was contracted? (2) Did the plaintiff charge the account to the son or to his father? These the jury answered in the plaintiff's favor. For a time, his father had paid the son wages and settled with him when he determined, contrary to his father's wishes, to go away to school. While he was away, his father contributed nothing to his support, and did not know of his son's illness or that the plaintiff was attending him. The son's ailment was a private one, which he would naturally desire to keep from his parents. The value of the services was not questioned.

The court is of the opinion that, without considering whether the son had been emancipated, or whether the plaintiff intended to hold the defendant responsible, the liability of the defendant was not established, and the jury should have been so instructed. It is manifest that the son had neither express nor implied authority to pledge his father's credit. The plaintiff made no express contract with the father, nor were the services rendered under circumstances from which, generally, a promise to pay would be implied. If the defendant was liable, it was because of some general moral or legal duty to provide necessaries for his son, failing in which a stranger might supply them at the parent's expense. There was some evidence of the real need for medical services; none of a failure of duty on the part of the father. Nor was there any exigency, such as the imminent peril of the son and his distance from home, to take the case out of the rule that parental duty must be neglected before a stranger may supply what the parent ought to supply, at the expense of the parent. The court takes notice that over the few miles lying between the place of the father's residence and where the son was, information could have been speedily conveyed to the father.

## Lack of Skill or Bad Judgment of Surgeons No Defense to Crime

*(State vs. Gabriella (Ia.), 144 N. W. R. 9)*

The Supreme Court of Iowa affirms a conviction of manslaughter although it was contended for the defendant that the death of the man he shot resulted from a surgical operation negligently performed. The court says that immediately after the shooting the man shot was taken to a hospital where he was cared for to the time of his death. Because of his condition as the result of the wound, the hospital surgeons performed an operation on him with a view of improving his condition and saving his life. The operation, however, was not successful and the patient died within a few hours. At the trial the defendant offered testimony to show that the operation was not performed in a manner in which a reasonably prudent surgeon would perform it. But all proffered testimony along that line was rejected by the trial court. There was no claim that the man had recovered from his wound at the time of the operation, or that there was any evil intent in the performance of the operation, or that it was performed for any other purpose than in a good-faith attempt to save the life of the patient. Lack of skill or bad judgment or mere negligence in any form on the part of the surgeon will not avail the slayer to protect him against the final consequences of his wrongful act.

## Death of an Alcoholic From Pneumonia After Being Stabbed—Expert Testimony

*(State vs. James (Minn.), 144 N. W. R. 216)*

The Supreme Court of Minnesota says that the defendant inflicted knife-wounds on one Miller, one of the wounds being a deep stab which penetrated the left lung. Forty-eight hours after the assault Miller developed pneumonia, and died from that disease a week later. Miller was a large, heavy man, in the prime of life. He was in good health, except for alcoholism. The pneumonia attacked the left lung, and did not affect the other. One physician gave it as his opinion that the pneumonia was caused by infection through the wounds, particularly the stab that punctured the left lung. He testified that this was not an unexpected result in wounds of this character, though not a necessary result. He based his opinion that the wound caused the pneumonia in this case, on the fact that the disease attacked and was confined to the lung that was pierced by the knife, the fact that it developed at a time after the wound when it was usual for pneumonia to manifest itself, and the fact that the patient did not have the preliminary symptoms that ordinarily accompany the beginning of pneumonia, acquired by inhaling the germs; that is, a chill and a feeling of lassitude. Another physician expressed himself as unable to give an opinion whether the germ was taken into the lungs by inhalation, or whether it was introduced into the lung by the knife of the defendant. The court holds that the evidence did not leave the cause of death a matter of speculation or conjecture, but was sufficient to justify the conclusion that the pneumonia germ was not inhaled, but entered the lungs on the knife-blade of the defendant or through the puncture in the lung made by the knife, and therefore that the defendant caused the death and was guilty of murder.

This was not a case in which the experts disagreed, but in which one gave an opinion, and the other was unable to do so. Neither was it a case in which the jury could consider nothing but the opinions of experts in reaching its conclusion. The case concerned a matter of science or specialized art, in so far as it involved an inquiry into the causes and symptoms of pneumonia, and was a proper one for the opinions of experts as to the cause of the disease in the particular case, after the foundation of expert knowledge and acquaintance with the facts was laid. But the question was *not one on which there could be no light except the expert* opinions. The facts already mentioned were such as the jury could consider in reaching a decision, together with the expert evidence.

It was not claimed, and could not be, that alcoholism was a cause of the pneumonia. It was a condition which made it easy for the bacillus to do its work, but not a cause. That alcoholism made a fatal result more probable was not against the conclusion that the defendant caused the death, any more than if blood-poisoning had followed the wounds, and it was asserted that Miller's being "saturated with alcohol" made it impossible to resist the disease.

# Society Proceedings

## COMING MEETINGS

American Medical Association, Atlantic City, June 22-26.

Alabama Medical Association, Montgomery, April 21-24.
Am. Assn. of Genito-Urinary Surgs., Stockbridge, Mass., May 15-16.
American Dermatological Association, Chicago, May 14-16.
American Gynecological Society, Boston, May 19-21.
American Laryngological Association, Atlantic City, May 25-27.
American Medico-Psychological Association, Baltimore, May 26-29.
*American Neurological Association, Albany, May 7-9.*
American Ophthalmological Society, Hot Springs, Va., May 12-13.
American Otological Association, Atlantic City, May 27-28.
American Pediatric Society, New London, Conn., May 26.
American Society of Tropical Medicine, Boston, May 29-30.
American Therapeutic Society, Albany, May 29-30.
Arizona Medical Association, Tucson, April 21-22.
Arkansas Medical Society, Eldorado, May 19-22.
Association of American Physicians, Atlantic City, May 12-13.
Connecticut State Medical Society, New Haven, May 20.
Florida Medical Association, Orlando, May 13-15.
Illinois State Medical Society, Decatur, May 19-21.
Iowa State Medical Society, Sioux City, May 13-15.
Kansas Medical Society, Wichita, May 6-7.
Louisiana State Medical Society, New Orleans, April 20-23.
Maryland Medical and Chir. Faculty, Baltimore, April 28-30.
Missouri State Medical Association, Joplin, May 12-14.
Nat. Assn. for Study and Prev. of Tuberculosis, Washington, May 7-9.
National Association for the Study of Epilepsy, Baltimore, May 25.
Nebraska State Medical Association, Lincoln, May 12-14.
New Hampshire Medical Society, Concord, May 13.
New York State Medical Society, New York, April 28-30.
North Dakota State Medical Association, Grand Forks, May 13-14.
Ohio State Medical Association, Columbus, May 5-7.
Oklahoma State Medical Association, Guthrie, May 12-14.
South Dakota State Medical Association, Watertown, May 26-28.
Texas State Medical Association, Houston, May 12-14.
West Virginia State Medical Association, Bluefield, May 13-15.

# Current Medical Literature

## AMERICAN

Titles marked with an asterisk (*) are abstracted below.

### American Journal of Diseases of Children, Chicago

*April, VII, No. 4, pp. 253-336*

1 *Incubation Period. No. 1—Serum Disease. D. M. Cowie, Ann Arbor, Mich.
2 *Tuberculosis of Lungs, Liver and Spleen, with General Glandular Enlargement in Child. J. S. Leopold, New York.
3 *Why Sodium Citrate Prevents Curdling of Milk by Rennin. A. W. Bosworth and L. L. Van Slyke, Geneva, N. Y.
4 *Gastric Digestion in Infants. M. Hahn, Washington, D. C.
5 Neurosis Chiefly Affecting Stomach and Muscles of Deglutition. A. A. Howell, Philadelphia.

1. **Incubation Period. No. 1—Serum Disease.**—The object of Cowie's first set of experiments was to determine in as many cases as possible the time at which specific oversensitiveness to horse-serum could first be demonstrated; in other words, the time that elapses from the first injection of horse-serum until antibodies are demonstrable by the intracutaneous test.

Thirty individuals whose ages varied from 6 months to middle adult life were sensitized to horse-serum by means of prophylactic injections of diphtheria antitoxin. Of these, seventeen were children and thirteen adults. Ninety-four per cent. reacted to the cutaneous test. One of the children was found to be refractory; that is, after repeated intradermal injections sensitization could not be demonstrated up to the tenth day of the experimental period. However, specific oversensitiveness was demonstrated in this case on the forty-first day. One adult did not remain long enough for specific sensitiveness to occur. One hundred per cent. of the adults responded to the test; 94 per cent. of the children. With the exception of one, all reacting cases remained sensitive throughout the first experimental period of eight to twelve days.

In the second series of experiments observations were made to determine how long an individual remains sensitive to an inoculation of horse-serum, and the factors influencing the reaction. Cowie found that an individual may remain very markedly oversensitive (allergic) for seven years. In two other cases seventeen months and two years, respectively, had elapsed since the antitoxin was given.

The third series of experiments consisted of observations made to determine if a small dose of horse-serum is sufficient to sensitize to the point of recognition by the intradermal test, and if so for how long. Typical oversensitiveness as recognized by the intradermal test was brought about in a child by at least 1 c.mm. of horse-serum ($\frac{1}{10}$ c.c.) without the provocative influence of successive injections, and the reaction continued over a period of seven days; the reaction occurred in all cases on the fourth or fifth day, as is the rule after the longer initial injection (5 to 10 c.c.); the reaction was equally as pronounced as it is after the larger injection at the same period of observation, and sensitization by means of a minute dose of horse-serum continues for 136 days.

Cowie divides the so-called incubation period of serum disease into three distinct stages—preallergic, allergic and hyperallergic, depending on the degree of reaction of the organism as a whole, all of which can be definitely determined. The duration of the preallergic stage is uninfluenced by the smallness of the dose of serum. The visible symptoms of serum disease are due to hyperallergy. The hastened and immediate reactions depend on quantitative reaction factors. The blood serum of a normal child recently injected with horse-serum, for the first time, when injected in small amount into a highly allergic child will induce the symptoms of serum disease as recognized by an immediate or a hastened reaction.

2. **Tuberculosis of Lung, Liver and Spleen.**—Leopold's chief object in reporting this case is to call attention to the difficulty of classification of tuberculosis combined with atypical changes in the lymphatic system, of which it is an example. Miliary tuberculosis of the lungs, liver and spleen is here combined with general glandular changes that closely resemble those found in the condition called "pseudoleukemia." The points of chief interest in this case were the enlargement of the liver, the great enlargement of the spleen, the ascites and the anemia with leukopenia. In making a diagnosis of the patient's condition the various forms of leukemia, a new growth, lues, tuberculosis, pseudoleukemia and Banti's disease were considered. The blood-picture ruled out the various forms of leukemia. The smooth surface of the liver and of the spleen spoke against a new growth. Lues could be ruled out by the history and the course of the case as well as by the negative Wassermann reaction. The diagnosis by exclusion was therefore either tuberculosis, pseudoleukemia or Banti's disease.

In Banti's disease there is usually a much more severe anemia than was present in this case. The course of Banti's disease is as a rule of three to ten years' duration. There are frequently hemorrhages from the stomach and intestines, and during the end stages of the disease there is usually a positive test for urobilin in the urine. All of these conditions were here absent. On the other hand, the rather acute onset, the short course of the disease, together with the remittent temperature and a positive v. Pirquet reaction pointed toward tuberculosis or pseudoleukemia. A positive diagnosis was not made.

3. **Why Sodium Citrate Prevents Curdling of Milk.**—Work previously done by the authors led them to test the matter by an experimental study of the action of sodium citrate on milk. They found that the addition of sodium citrate to normal milk increases the amount of soluble calcium in the milk, this increase resulting from a reaction between the calcium caseinate of the milk and sodium citrate, by which is formed sodium caseinate (or calcium-sodium caseinate) and calcium citrate. The reaction is reversible. The curdling of milk by rennin is delayed by the presence of sodium citrate; when there is added 0.400 gm. of sodium citrate per 100 c.c. of milk (equal to 1.7 grains per ounce), no curdling takes place. The curd produced by rennin in the presence of small amounts of sodium citrate (0.050 to 0.350 gm. per 100 c.c. or 0.20 to 1.5 grains per ounce) increases in softness of consistency as the amount of sodium citrate in the milk increases.

The results of this work indicate that at the point at which rennin fails to curdle milk, in place of the calcium caseinate of normal milk there is a double salt of calcium-sodium caseinate; this double salt, when rennin is added, is changed to a calcium sodium paracaseinate which, owing to the presence of the sodium, is not curdled. The practice of adding sodium citrate to milk at the rate of 1 to 2 grains of citrate per ounce of milk appears in their judgment to have a satisfactory chemical basis in the reaction between the sodium citrate and the calcium caseinate of the milk. The amount added is governed by the object in view, viz., whether it is desired to prevent curdling or only modify the character of the curd in respect to softness.

4. **Gastric Digestion in Infants.**—Ninety-four specimens of stomach contents from thirty-seven infants were analyzed by Hahn. He found that the determination of the hydrogen-ion concentration is the only rational method of measuring gastric acidity in infants. The hydrogen-ion concentration, $(H) = 1 \times 10^{-5}$, is the normal reaction of the stomach contents at the height of digestion for infants fed on ⅓ milk-cream and ⅔ milk. $(H) = 1.0 \times 10^{-5}$ is the optimum reaction for rennet and gastric lipase; pepsin is inert at this reaction. The important processes in the gastric digestion of infants are the coagulation of milk by rennet and the splitting of fat by gastric lipase; the peptic digestion of casein is unimportant for the infant. In infants from 1 to 4 months old fed on ⅓ cream-milk the lipase content increases with the age of the infant. In infants from 4 to 12 months old fed on ⅔ milk the content of all gastric ferments is greater than in infants from 1 to 4 months old on ⅓ cream-milk.

### American Journal of Tropical Diseases and Preventive Medicine, New Orleans

*March, I, No. 9, pp. 605-668*

6 Epidemic of Paratyphoid Fever. A. N. Sinclair, Honolulu.
7 Growth of Filaria Embryos in Vitro. F. M. Johns and P. L. Querens, New Orleans.
8 Innocuous Bites of Malaria and Yellow Fever Mosquitoes During Daytime. E. Echeverría, San Jose, Costa Rica.
9 Health Survey. W. H. Deaderick, Hot Springs, Ark.

### Archives of Ophthalmology, New Rochelle, N. Y.

*March, XLII, No. 2, pp. 117-230*

10 Experiments on Cultivation of So-Called Trachoma Bodies. H. Noguchi and M. Cohen, New York.
11 Results after Trephining. A. Knapp, New York.
12 Angioma of Lids and Brow. H. B. Lemere, Omaha.
13 Lenses for Refraction of Cataract Cases. D. N. Dennis, Erie, Pa
14 Operative Treatment for Squint. E. Landolt, Paris.
15 Endogenous Gonorrheal Corneal Affections. F. Pincus, Cologne.
16 Occurrence of Catlike Pupils in Man. R. Greeff, Berlin.
17 Progress of Ophthalmology. H. Koellner, Berlin, and others.

### Bulletin of Lying-In Hospital of City of New York

*January, IX, No. 3, pp. 151-247*

18 *Treatment of Eclampsia. F. S. Newell, Boston.
19 Obstetric Technic for General Practitioner. J. W. Markoe, New York.
20 *Three Case Reports. A. B. Davis, New York.
21 *Treatment of Puerperal Streptococcemia with Intravenous Injections of Magnesium Sulphate. J. A. Harrar, New York.
22 *Treatment of Placenta Praevia by Cesarean Section. R. McPherson, New York.
23 Maternity Hospital Care for Woman of Moderate Means. G. W. Kosmak, New York.
24 Two Cases of Esophagotracheal Fistula. J. R. Losee, New York.
25 Work Done in Babies' Class from October 1, 1912, to September 30, 1913. E. L. Coolidge, New York.
26 Clinical Report of Work of First Division of Lying-In Hospital for Year 1912. J. A. Harrar, New York.

18. **Treatment of Eclampsia.**—The principal points in the treatment of eclampsia which Newell says will lead to a satisfactory results are first, prophylaxis, the early recognition and treatment of symptoms; second, venesection, with or without delivery according to the nature of the case; and third, the securing of elimination of all possible toxins through the intestinal tract, meanwhile using morphin, or, if preferred, veratrum viride, to lessen the tendency to convulsions until elimination of the toxins is under way. The mortality from eclampsia is sure to be high if the patients are not seen and treated till the development of convulsions, no matter what method of treatment may be carried out, whether medical or surgical, but if the process is recognized early and treated efficiently most cases are amenable to medical treatment. If, however, prompt amelioration of symptoms does not occur, delivery by the method best suited to the conditions present in the individual case should be carried out and followed by efficient after-treatment.

20. **Three Case Reports.**—Davis cites the following cases: (1) A case of intermittent and unilateral chyluria. The patient stated that she first noticed the change in her urine at about her fifteenth year, near the time of her first menstruation; that it was not constant in its appearance, but the chylous condition would be absent for years at a time, and would reappear after any indulgence in anger or emotion. Palpation has never revealed tenderness or enlargement of the left kidney. The chyluria was absent for several years, but reappeared at the death of her mother ten years ago, and was present for several months. It was present during the entire time of her first pregnancy, and for nine months thereafter. During and after her second pregnancy, it was absent. There has been no noticeable difference in the character of the night and day urine. Sept. 13, 1913, the urine had been clear for five days, and the general health was good. She was nursing her infant. (2) Acute dilatation of the stomach, following ventral fixation of the uterus, long labor. Low forceps delivery, recovery. (3) Myomectomy at the eighth week, pregnancy not interrupted. Normal delivery at term.

21 and 22. Abstracted in The Journal, Oct. 4, 1913, pp. 1320 and 1321.

### Cleveland Medical Journal

*March, XIII, No. 3, pp. 141-220*

27 *Factors in Diagnosis and Treatment of Syphilitic Aortitis. W. T. Longcope, New York.
28 Dentition of Apes. T. W. Todd, Cleveland.
29 History of Physiology of Circulation. R. G. Pearce, Cleveland.
30 Radium. W. T. Corlett, Cleveland.
31 Treatment of Abscess of Nasal Septum. W. J. Abbott, Cleveland.

27. **Diagnosis and Treatment of Syphilitic Aortitis.**—Longcope claims that syphilitic aortitis is a common manifestation of tertiary syphilis, in this respect approaching in frequency tabes and paresis. It is, moreover, in many instances, associated with syphilis of the central nervous system. The diagnosis in most instances is first made after the appearance of aortic insufficiency, aneurysm or angina pectoris and when such symptoms as pain, paroxysmal dyspnea and evidences of slight heart failure have already appeared. Without these signs dilatation of the aortic arch is the most reliable evidence, though cases of non-syphilitic dilatation may occur presenting exactly the same clinical picture as syphilitic aortitis. A positive Wassermann reaction is, therefore, essential for an accurate diagnosis.

Treatment with salvarsan and mercury has rarely given more than temporary relief. The reason for this seems to depend at least in part on a number of factors. Owing to the danger of Herxheimer reactions, only small doses of salvarsan can be administered safely intravenously, though Hg seems to be without harm. Prolonged treatment is, therefore, required. In the second place, once symptoms have appeared, the life of the individual is very short, from 65 to 70 per cent. of the patients living only one or two years. To overcome this factor it is necessary to make the diagnosis early and institute treatment before irreparable damage has been done. And finally, the eradication of the disease, on account of the situation of the spirochetes, peculiarly protected from the blood-stream, is especially difficult. In an attempt to break down this barrier potassium iodid in large doses may be of assistance, and must be combined with prolonged and persistent specific therapy.

### Georgia Medical Association Journal, Augusta

*March, III, No. 11, pp. 359-393*

32 Diagnosis and Treatment of Duodenal and Gastric Ulcers. W. R. Houston, Augusta.
33 Autogenous Versus Stock Vaccines. C. W. Gould, Atlanta.
34 Use of Bacterial Vaccines in Treatment of Acute Chronic Infections. Report of Results. L. M. Gaines, Atlanta.
35 Desirability of Knowledge in Using and of Simplicity in Prescribing Drugs. R. H. Stovall, Macon.
36 Report of Ten Transfusions. C. C. Harrold, Macon.
37 Salpingitis. A. Griffin, Valdosta.

### Journal of Infectious Diseases, Chicago

*March, XIV, No. 2, pp. 217-401*

38 *Pasteurization in Bottles and Process of Bottling Hot Pasteurized Milk. S. H. Ayers and W. T. Johnson, Jr., Washington, D. C.
39 *Ferments for Carcinomatous Protein in Blood Carcinoma. G. F. Dick, Chicago.
40 Phenomena Involved in Life History of Spirochaeta Suis. W. E. King and R. H. Drake, Detroit, Mich.
41 *Non-Cholera Vibrio Resembling True Cholera Vibrio and Pigment-Forming Vibrio. J. G. Drennan, Staten Island, N. Y.
42 Disinfectant Action of Certain Bacterial Stains. A. M. Jansen, Columbus, Ohio.
43 *Trachoma and Allied Conditions in New York School Children. A. W. Williams and Others, New York.
44 *Absorption of Antitoxin and Agglutinin Injected Subcutaneously. W. H. Park, L. W. Famulener and E. J. Banzhaf, New York.
45 Serum Sensitization and Dosage of Antitoxin. W. H. Park, L. W. Famulener and E. J. Banzhaf, New York.
46 *Protective Enzymes, Immune Sera and Anaphylaxis. R. M. Pearce and P. F. Williams, Philadelphia.
47 Immunologic Relationship of Hordein of Barley and Gliadin of Wheat. G. C. Lake, T. B. Osborne and H. G. Wells, Chicago.
48 *Anaphylactogen Activity of some Vegetable Proteins. H. G. Wells and T. B. Osborne, Chicago.
49 *Immunologic Reactions of Proteins of Human Placenta with Special Reference to Production of Therapeutic Serum for Malignant Chorion Epithelioma. G. L. Lake, Chicago.

38. **Pasteurization in Bottles.**—The authors summarize the result of their work as follows: The process of pasteurization in the bottle using a temperature of 145 F. for thirty minutes causes satisfactory bacterial reductions. Bottles should be steamed before being filled with milk for at least two minutes in order to destroy heat-resisting types of organisms which might survive the pasteurizing temperature and thereby increase the bacterial count. Care must be taken to record the temperature in the bottom of the bottle during the heating process. When milk at an initial temperature of 50 F. is heated in bottles without agitation in water at about 146 F. the temperature of the milk in the top of the bottle will reach 140 F. about nine minutes before that in the bottom. The temperature of the milk during the process of pasteurizing in the bottle should be recorded by placing a thermometer in a control bottle with the bulb of the thermometer about ½ inch from the bottom. The milk should be heated for thirty minutes at 145 F. Care should be taken not to use bottles with chipped or otherwise imperfect tops since the seal caps may allow leaks during the process of pasteurizing. It is advisable for the users of patented seal caps to assure themselves that the caps are water-tight since leaking caps might cause dangerous infections, particularly if the cooling water is polluted.

The great advantage of the process of pasteurization in bottles over the ordinary systems in use at present lies in the fact that no recontamination can take place from the time of pasteurization until it reaches the consumer, when the caps are water-tight. There is also a saving in milk losses due to handling and evaporation over coolers which is usual in the ordinary methods of pasteurization. Considerable expense, however, is incurred owing to the necessity of water-tight caps, which is a disadvantage of the process. Whether the saving in milk losses makes up for the additional expense of seal caps can be determined only by experience. The process of bottling pasteurized milk while hot into hot, steamed bottles causes equally good bacterial reductions as pasteurization in bottles. Even with the same lengths of exposure of thirty minutes and the same temperature of 145 F. the bacterial reductions are often much greater than those produced by pasteurization in bottles. In the process of bottling hot, bottle infection is eliminated even when several cubic centimeters of old sour milk are added to bottles before filling. The two minutes steaming period to which the bottles are subjected before filling with hot milk is sufficient to destroy the contamination at least so far as bacteriologic methods can detect.

Laboratory experiments indicate that milk may be pasteurized, bottled hot, capped with ordinary cardboard caps, and cooled by a blast of cold air. It is probable that if milk is cooled from 145 to 50 F. within five hours no more bacterial increase will take place during the slow cooling than would take place if the milk were cooled immediately to 50 F. Whether or not this will be true under commercial conditions can be determined only by future experiments. As far as the authors' laboratory experiments indicate, when milk is heated to 145 F. for thirty minutes, bottling hot pasteurized milk followed by slow gradual cooling has no more appreciable effect on the cream-line or flavor of milk than does the ordinary process of pasteurization. This is true for cooling periods of less than five hours' duration. Since milk contracts on cooling, a quart bottle filled with milk at 145 F. does not hold a full quart when the milk is cooled to 50 F. It is about 0.62 of an ounce short. Therefore slightly oversized bottles should be used. The advantages of the process are: (1) that the bottle infection can be eliminated, (2) that milk losses are saved, owing to evaporation over the cooler, and (3) that ordinary cardboard caps can be used. The principal disadvantage is that the air-cooling process requires several hours. This, however, would be a disadvantage only in the few plants where milk is delivered directly after pasteurization. The process of bottling hot pasteurized milk followed by air-blast cooling appears from these laboratory experiments to be an entirely feasible modification of the "holder" system of pasteurization. This process will be the subject of a future study on a commercial scale in which the details of bottling and air-blast cooling can be worked out in a manner which will prove or disprove the practical value of this process.

39. **Ferments for Carcinomatous Protein.**—By the titration method of estimating amino acids, ferments capable of splitting protein from carcinomatous tissue were demonstrated by Dick in the blood serum of patients with carcinoma. The power of the blood serum of carcinomatous patients to split carcinomatous protein is not different from the normal with the same constancy and to the same degree when estimated by amino acid titration as indicated by the results obtained with the dialysis method of Abderhalden. Serum capable of splitting protein from carcinoma of the uterus was also capable of splitting protein from carcinoma of the breast, but not mixtures of gelatin and Witte's peptone. The complement content of the blood serum of a carcinoma patient Dick found is as a rule higher than normal. Ten cases were studied.

41. **Non-Cholera and Pigment-Forming Vibrio.**—This vibrio is reported by Drennan because chromogenic vibrios are rare, if indeed one has as yet been reported. The rectal contents from which it was isolated were obtained by rectal swab from a young male, 18 years old, who showed some signs of intes-

tinal disturbance. It is a large, motile vibrio producing a large, white moist colony on alkaline agar and turning slowly to a dark, rich brown color from the formation of a pigment. The same grown alkaline peptone culture medium shows a growth at the surface, which slowly changes to the same dark brown and gradually extends to the depths of the tube. It is an aerobe and a facultative anaerobe, liquefying gelatin slowly. It produces acid in dextrose and saccharose peptone but not in lactose. It is slowly hemolytic and on alkaline blood-agar produces a geranium odor similar to that of the growth of *Bacillus pyocyaneus*. It is monotrichous and in this respect resembles the true cholera vibrio. It produces no indol The only points of resemblance between the true cholera vibrio and this pigment forming one are (1) the same source, human feces; (2) stain, Gram-negative; (3) both are aerobes, but the latter is also a facultative anaerobe.

43. **Trachoma and Allied Conditions in New York School Children.**—This study of 4,000 children showed that the written descriptions of trachoma do not agree as to a clinical or a pathologic entity. Among the children in 60 public schools in the crowded lower East Side of New York City (supposed *to be a hotbed of trachoma) during the past four years* no cases of conjunctival affections answering in their entirety to the classic descriptions of trachoma were found. None of the 3,000 and more cases of follicular affections in these children have developed cicatricial changes due to the infection; on the contrary the great majority of them now present normal conjunctivas. The authors attribute these results chiefly to the following measures: (*a*) The carrying out of preventive methods of treatment such as ophthalmia schools and school clinics, summer camps, mothers' demonstration classes, home instructions and "follow-up" work. (*b*) More minute care of acute, as well as of chronic cases, including the specific treatment given chiefly at clinics and the "follow-up" work in the homes. (*c*) Non-operative procedures in a large number of cases formerly operated.

Hemoglobinophilic bacilli were found in a large proportion of the cases of chronic conjunctivitis (especially of the papillary type) as well as in those of acute catarrhal conjunctivitis (including clinically typical "pink eye"). These bacilli, though they probably represent several different varieties, have not yet been differentiated from *Bacillus influenzae*. These bacilli were found coincidently with trachoma inclusions in a high percentage of the cases of subacute and chronic conjunctivitis when examined from the beginning. They show morphologic and staining characteristics similar to those seen in trachoma inclusions; and transition forms between bacilli and inclusions are frequently seen in these cases. In a few cases of acute catarrhal conjunctivitis, trachoma inclusions and transition forms have been found coincidently with hemoglobinophilic bacilli and in several other acute cases transition forms have been often found. Many of the cases of chronic papillary conjunctivitis not actually followed from the beginning gave a history of repeated acute attacks, and several cases beginning as acute contagious conjunctivitis passed into the chronic condition called papillary conjunctivitis.

Cell inclusions similar to the trachoma inclusions found in the papillary conjunctivitis cases were found in cases of gonorrheal ophthalmia neonatorum, cultures from which showed only gonococci. These inclusions differ somewhat from those found in the papillary conjunctivitis cases, and transition forms between gonococci and inclusions are seen in smears from the former cases. Members of the pneumostreptococcus group were frequently found in chronic as well as in acute cases, especially in those cases showing pannus.

The general conclusions arrived at are: (1) Trachoma inclusions are nests of growing bacteria in epithelial cells—hemoglobinophilic bacilli in certain cases of papillary conjunctivitis, gonococci in certain cases of gonorrheal conjunctivitis and possibly other bacteria in certain other cases of conjunctivitis. (2) Under minute hygienic and medicinal treatment, the great majority, if not all, of the cases of conjunctival affections of children may run a benign course resulting *in normal conjunctivas. (3) Comparatively few, if any*, cases of chronic conjunctivitis develop in individuals exposed, if the rules of general and personal hygiene are carried out. (4) *If trachoma is present or should be introduced among our* schoolchildren it may be controlled by methods which are within practical limits.

44. **Absorption of Antitoxin and Agglutinin.**—The degree of protein concentration which is usually employed to produce the refined and concentrated diphtheria antitoxin globulin *preparations the authors found has little or no effect in retard*ing the absorption of the antitoxin from the subcutaneous tissues. The removal of water, if not pushed too far, is therefore a justifiable means of lessening the quantity of fluid to be injected. Any preparation which causes local inflammatory reaction lessens the rate of antitoxin absorption.

46. **Protective Enzymes, Immune Sera and Anaphylaxis.**—On the basis of Abderhalden's theory of protective enzymes and by the use of his dialysis method it has been shown by Pearce and Williams that the serum of a rabbit receiving a single injection of kidney substance develops the power to digest dog's kidney *in vitro*, but has no effect on the kidney of the dog when administered intravenously. Thus it would appear that the so-called protective enzymes are not to be classed with the immune cytolysins. The digestive power of the serum which develops aftter the injection of kidney is not limited to the kidney but acts also on the liver. This is true after one injection or after four or five injections. There is some evidence, however, after multiple injections of a tendency to a more definite effect on the kidney than on the liver.

A few attempts to demonstrate protective enzymes in the serum of dogs receiving dog's kidney and of animals with experimental nephritis have failed. Attempts to demonstrate protective enzymes in the serum of dogs sensitized to horse serum have not been successful as those of Abderhalden with the serum of the guinea-pig sensitized to egg-white. Negative results have been the rule before shock, and positive results, difficult of explanation, after shock. Dialysis, alone, of small amounts (2 c.c.) of serum, obtained either before or five to ten minutes after "shock" in dogs sensitized to horse serum, gives no evidence of the presence of the products of protein disintegration. Large amounts (10 to 20 c.c.) taken one-half to one and one-half hours after shock give positive results after dialysis, but the interpretation of these is doubtful on account of the difficulty, under these circumstances of obtaining serum free of traces of hemoglobin.

The authors conclude that the results of the injection of renal tissue support Abderhalden's general contention concerning protective enzymes, but indicate a lack of specificity. On the other hand this work with anaphylaxis, while suggestive, is not sufficiently definite to be used in support of the theory that the essential mechanism of anaphylaxis can be explained on the theory of the development of a protective enzyme. On account of the many difficulties which the technic of this method presents—and especially because of the frequent presence of ninhydrin reacting substances in the serum of normal animals—thus rendering exact control observation difficult, these results are presented with some hesitation. Moreover, without desiring to detract in any way from the importance of the underlying principle of Abderhalden's theory of protective enzymes as exemplified by this work on preg*nancy, they urge caution as to hasty attempts to apply this* theory as a general explanation of widely diverse conditions of altered physiology.

48. **Anaphylactogenic Activity of Vegetable Proteins.**—The data presented in this paper support the assumption that the severity of the anaphylaxis reactions produced by intraperitoneal injections of dilute alkaline solutions of vegetable proteins is, approximately, in inverse ratio to their relative precipitability when their solutions are mixed with the peritoneal fluid. Proteins like edestin, which are readily precipitated, and only slowly redissolved, under conditions similar to those presumably prevailing in the peritoneum, rarely produce a fatal intoxication; whereas those that are less *easily precipitated and more readily dissolved, give* fatal

reactions in much smaller doses. The lethal dose of those vegetable proteins which are readily soluble in pure water, or in very dilute saline solutions, is smaller than that of those which are soluble only in comparatively strong saline solutions. The minimum intoxicating dose of most of the vegetable globulins (i. e., proteins insoluble in pure water but soluble in saline solutions) administered intraperitoneally is from 1 to 2 mg., but from 5 to 10 mg. are usually required for severe intoxication. On the other hand, the minimum intoxicating dose of those so-called vegetable proteoses which are readily soluble in pure water and are uncoagulable by heat is much smaller, moderate to severe reactions being obtained with 0.05 to 0.1 mg. and fatal results with 0.5 to 2 mg.

49. **Proteins of Human Placenta.**—The possibility that immune serum of therapeutic value in chorion-epithelioma can be prepared specifically for the human placenta is, in Lake's opinion, at least at this time, extremely slight.

### Journal-Lancet, Minneapolis

*March 15, XXXIV, No. 6, pp. 149-172*

50 Clinical Aspects of Primary Diffuse Degeneration of Spinal Cord. C. E. Riggs, St. Paul.
51 Knee-Joint: Anatomy and Physiology. E. R. Hare, Minneapolis.
52 Case of Mikulicz' Disease. C. Fisher, Rochester, Minn.
53 Epigastric Pains. J. E. Engstad, Minneapolis.
54 Arteriosclerosis. C. W. Watson, Minneapolis.

### Kentucky Medical Journal, Bowling Green

*March 15 and April 1, XII, Nos. 6-7, pp. 189-236*

55 Functional Affections of Heart. C. B. Johnson, Earlington.
56 Fractures and Roentgenography. R. C. Falconer, Lexington.
57 Review of Bulletin of State Board of Health of Kentucky, Biennial Report, 1910-1911. B. C. Frazier, Louisville.
58 Anesthesia. L. Frank, Louisville.
59 Hare Lip. D. O. Hancock, Henderson.
60 Cases of Ocular Disturbance Caused by Nasal Disease. S. G. Dabney, Louisville.
61 Chronic Constipation. B. Asman, Louisville.
62 Postdiphtheritic Paralysis. G. C. Hall, Louisville.
63 Treatment of Alcoholism. E. W. Stokes, Louisville.
64 Cesarean Section, Naegele Pelvis. (Report of Case.) J. H. Peak, Louisville.
65 Tuberculous Meningitis. J. A. O. Brennan, Louisville.
66 Foreign Body in Eye Removed by Magnet. J. M. Ray, Louisville.
67 Intraspinous Injection of Salvarsanized Blood Serum in Syphilitic Affections of Central Nervous System. C. W. Jefferson, Louisville.
68 Medical Ethics. J. W. Ellis, Masonville.
69 Is Demand for Services of Regular Practitioner Growing Less? W. J. Shacklette, Nolin.

### Medical Record, New York

*April 4, LXXXV, No. 14, pp. 559-644*

70 *Method for Plicating Voluminous Ceca. J. A. Blake and J. N. Worcester, New York.
71 Drainage of Bladder Following Suprapubic Operations. C. H. Chetwood, New York.
72 Dental Aspect of Oral Infection. M. L. Rhein, New York.
73 Case of Sporotrichosis with Multiple Localizations. F. Dominguez, Havana, Cuba.
74 Liquor Question in Medicine. E. H. Williams, Montclair, N. J.
75 Present Status of the Non-Operative Treatment of Benign and Malignant Growths. At Clinics Abroad. S. Stern, New York.
76 Cicatrix of Bladder Relieved by Fulguration. L. B. Bangs, New York.
77 Autoserum Injections in Certain Obstinate Dermatoses. W. S. Gottheil and D. L. Satenstein, New York.

70. **Method for Plicating Voluminous Ceca.**—The operation employed by Blake and Worcester consists in stitching the ventral and lateral teniae together after the appendix has been removed; thus folding in or plicating the cecum and ascending colon. A non-absorbable suture of silk or linen is used, and the stitches are taken a long way apart, usually about two centimeters or a little less, so that when the stitch is drawn tight the length as well as the diameter of the gut is diminished. The stitching is carried aborally as far as is practicable, usually for 10 to 15 cm.. The contractility of the gut is not impaired as it would be if part of the wall were excised, and it is believed that on account of its diminished capacity there is not so great a tendency to accumulation and stasis. Apparently the results confirm the reasonableness of this belief.

### Military Surgeon, Washington, D. C.

*April, XXXIV, No. 4, pp. 301-400*

78 Modern Operations for Glaucoma with Especial Reference to Elliot Operation of Corneo-Scleral Trephining. L. W. Fox, U. S. Army.
79 Detection of Tuberculosis in Recruit. L. H. Schultz, Colorado National Guard.
80 Leprosy in Its Relation to Treponematous Disease. F. Schmitter, U. S. Army.
81 Disease and Garrison Ration. G. L. McKinney, U. S. Army.
82 Is Field Hospital Unit Sufficiently Mobile to be of Practical Use During an Active Campaign? H. H. Doan, National Guard of Pennsylvania.
83 *Sprue Treated by Emetine Hydrochlorid. F. Schmitter, U. S Army.
84 Anti-Typhoid Vaccination. F. W. Foxworthy, U. S. Army.
85 Cocainism in Army. W. B. Meister, U. S. Army.
86 Rational Treatment of Gunshot Wounds of Abdomen on Battlefield. J. Frank, Illinois National Guard.
87 Pocket Field Case for Medical Officers with Actively Moving Commands. P. C. Fauntleroy, U. S. Army.

83. **Sprue Treated by Emetine Hydrochlorid.**—In six cases of sprue Schmitter used emetine hydrochlorid with good results. In all of these cases the soreness of the tongue and mouth either cleared up or was improved. All of them had complained of a feeling of tension across the upper abdomen which they usually volunteered to say was relieved soon after the emetin treatment began. The objection to the treatment is the increased activity of the bowel which it causes, but that is only temporary and trivial in comparison with the general improvement. In the first three cases treated the emetin was dissolved by the acid of hydrochloric acid and given intramuscularly. The results in these cases seemed more prompt and definite than in the later three cases which were treated with hypodermic injections of emetin hhydrochlorid purchased in the market.

### New Mexico Medical Journal, Las Cruces

*March, XI, No. 6, pp. 177-206*

88 Disease of External Canal, Simulating Middle Ear Disease. E. R. Carpenter, El Paso, Tex.
89 Every-Day Eye Injuries. F. E. Till, Albuquerque.
90 Unusual Eye Injuries. E. H. Irvin, El Paso, Tex.
91 Pellagra. J. W. Colbert, Albuquerque.

### Old Dominion Journal of Medicine and Surgery, Richmond, Va.

*March, XVIII, No. 3. pp. 113-185*

92 Direct Suture of Brachial Artery for Traumatism. J. G. Sherrill, Louisville, Ky.
93 Medical Man of Yesterday, To-Day and To-Morrow. B. C Keister, Roanoke.
94 Fractures of Neck of Femur. J. E. Moore, Minneapolis, Minn.
95 Specialism in Its Relation to Public and Profession from Standpoint of General Practitioner. R. M. Wiley, Salem.
96 How Some Little Ones Die. W. H. Taylor, Richmond.

### Pennsylvania Medical Journal, Athens

*March, XVII, No. 6, pp. 421-522*

97 *Puerperal Sepsis and Present Methods of Treatment. E. E. Montgomery, Philadelphia.
98 Structural or Fixed Scoliosis and Its Treatment by Abbott Method. J. T. Rugh, Philadelphia.
99 Recent Advances in Diagnostic Blood Examination. O. H. P. Pepper, Philadelphia.
100 Eustachian Tube. G. R. S. Corson, Pottsville.
101 *Relation of Venereal Diseases to Public Health. E. Martin, Philadelphia.
102 *Problems of Unfit. E. E. Mayer, Pittsburgh.

97. Abstracted in The Journal, Oct. 18, p. 1484.

101. Abstracted in The Journal, Oct. 25, p. 1564.

102. Abstracted in The Journal, Oct. 11, p. 1398.

### South Carolina Medical Association Journal, Seneca

*March, X, No. 3, pp. 439-477*

103 Benzol in Trehtment of Leukemia. J. H. Gibbes, Columbia.
104 Surgical Clinics in Europe. H. A. Royster, Raleigh, N. C.
105 Questions Submitted by State Board of Medical Examiners of South Carolina, November, 1913. H. H. Wyman, Aiken.
106 Psychology of Negro Revival. H. D. King, New Orleans, La.

### Washington Medical Annals, Washington, D. C.

*March, XIII, No. 2, pp. 83-171*

107 *Autoserotherapy in Serofibrinous Pleurisy. C. A. Pfender, Washington.
108 "Chronic Irritation" and "Fertilization of Epithelial Cells by Sperm"—Conjoint Causes of Cancer. A. F. A. King, Washington.
109 Case of Miliary Tuberculosis of Lungs Diagnosed by Roentgen Rays. C. A. Pfender, Washington.
110 Two Cases of Ectopic Pregnancy. I. H. Lamb, Washington.
111 Case of Epignathus. D. S. Lamb, Washington.

112 Case of Tuberculoma of Cerebellum. P. B. Johnson, Washington.
113 Hysteria Simulating Eclampsia in Primipara at Thirty-Seventh Week of Pregnancy. P. Willson, Washington.
114 Osteosarcoma of Humerus Following Fracture. A. R. Shands, Washington.
115 *Method of Testing Renal Function with Phenol-Sulphone-Phthalein. W. A. Frankland, Washington.
116 Case of Aneurysm of Thoracic Aorta, with Paralysis of Left Diaphragm and Hour-Glass Contraction of Stomach. J. D. Thomas, Washington.
117 Cavitation of Lung in an Infant Dying in Seventh Month. B. M. Randolph, Washington.
118 Essential Hematuria. A. Kemble, Washington.
119 Four Cases of Pregnancy Complicated by Uterine Tumors. W. S. Bowen, Washington.

107. **Autoserotherapy in Serofibrinous Pleurisy.**—In Pfender's opinion autoserotherapy is a reliable and safe method of treatment for all forms of serofibrinous pleurisy and should be employed in every case in which pyemic infection is absent. A positive cure may be expected in over 80 per cent. of cases. He analyzed the reports of 565 cases recorded in the literature since 1894; of this number 424 were cured and 31 benefited. In secondary pleurisies autoserotherapy may not exert any beneficial effect on the primary cause of disease. It will merely cause rapid absorption of the pleuritic fluid, however, and in incipient tuberculous conditions has been known to arrest the progress of this disease. In large effusions causing severe dyspnea and pain it is advisable to aspirate from 10 to 200 c.c. of fluid and before withdrawing the needle entirely to reinject 2 to 3 c.c. under the skin of the patient. The result will be immediate relief from subjective symptoms and more rapid absorption of the exudate. Autoserum injections should be repeated every other day until decided improvement follows. It is advisable to employ small doses from 2 to 3 c.c. only, as most authors have had the best results with this dose, and larger doses may not be without danger. Pfender cites three personal observations.

115.* **Testing Renal Function with Phenolsulphonephthalein.**—In the method of Frankland the patient first drinks two glasses of water, after which 1 c.c. of a solution containing 6 mg. of phenolsulphonephthalein is injected into the lumbar muscles. The urine is passed or drawn into a vessel containing an alkaline solution every five minutes after the injection until the distinctive color of the dye is observed, and every hour afterward, counting from the time of the injection, until the color is no longer present in the urine. Four bottles are provided and are numbered in which these specimens are placed for later examination, when their contents must be made alkaline, if not already so, by the addition of sodium hydroxid solution.

In normal cases the dye should appear in the urine in from five to ten minutes. By the end of the second hour about 80 per cent. should be excreted, leaving only 20 per cent., which is usually excreted within the third hour. The bottles of urine, therefore, would be colored as follows: First and second bottles, deeply colored; third bottle, pale; fourth bottle, urine uncolored. In abnormal cases in which the appearance of the dye in the urine is delayed, the results will be apparent in the bottles accordingly. The first bottle may be pale or uncolored by the dye. The second, third and fourth bottles may be colored with a pale or deep tint, depending on the rapidity of excretion. In the severe cases, especially in interstitial nephritis in which uremia is impending, the first bottle may be uncolored urine, the following ones all having the pale tint due to slow excretion.

## FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

### British Medical Journal, London

*March 21, I, No. 2777, pp. 663-692*

1 *Art of Prescribing. A. P. Luff.
2 Business Side of Medical Practice. J. Collie.
3 Medical Etiquette, Ethics and Politics. R. C. Buist.
4 Cancer, Public Authorities and Public. C. P. Childe.
5 Experiences of National Health Insurance Act. E. F. Pratt.
6 Hygienic Aspect of Coal-Mining Industry in United Kingdom. (Continued.) F. Shufflebotham.

1. **Art of Prescribing.**—It is Luff's conviction that there is a growing practice which is rapidly threatening to undermine to a great extent what he considers to be the skilled and rational employment of therapeutic agents in the treatment of disease. He refers to the too general use of powerful drugs in compressed forms and of proprietary preparations. Undoubtedly lamellae and tabellae of active principles in the hands of medical men are most convenient and useful for hypodermic and occasionally for other forms of administration; but it is the ready facility with which powerful drugs prepared in this form are obtained by the public which constitutes a grave danger, a facility which is responsible to a great extent for the increasing practice of self-drugging. Equally bad is the use of some of the proprietary preparations which are so speciously puffed, and with the samples and laudatory advertisements of which physicians are so profusely deluged, tempting the medical man as they do to the enervating habit of thinking that the writing of an order for such a preparation is the writing of a prescription, and gradually rendering him absolutely impotent to exercise the true art of prescribing.

There is another aspect to this subject to which Luff directs attention. The practice of writing an order for a particular form of compressed drug, or for a proprietary preparation (he says he cannot dignify such an act as the writing of a prescription) is apt to encourage patients to recommend such proprietary articles to their immediate friends who in their opinion are suffering from similar symptoms or from what they imagine to be a similar complaint.

The factors which make for success in the art of prescribing as Luff lays them down are: (1) A sound acquaintance with the therapeutic uses of drugs. (2) A thorough knowledge of the doses of drugs. (3) The avoidance of the mixing of drugs that are incompatible. (4) The administration of drugs which are nauseous or distasteful in such a form or combination as to be palatable to the patient.

### Journal of Tropical Medicine and Hygiene, London

*March 16, XVII, No. 6, pp. 82-96*

7 Human Recovery from Trypanosomiasis. T. S. Kerr.
8 Further Case of Entoplasmosis. A. Castellani.

### Lancet, London

*March 21, CLXXXVI, No. 4725, pp. 803-876*

9 Biology of Tumors. C. M. Moullin.
10 Technic of Operation of Sclero-Corneal Trephining for Glaucoma. R. H. Elliot.
11 *Nature of Rodent Ulcer. H. G. Adamson.
12 Arteriosclerosis. L. Williams.
13 *Etiology of Endemic Cretinism, Congenital Goiter and Congenital Parathyroid Disease. R. McCarrison.

11. **Nature of Rodent Ulcer.**—Two facts are mentioned by Adamson which might be thought to stand in the way of the acceptance of the view that rodent ulcer is etiologically distinct from the epitheliomatous growths which may occur as sequelae of keratosis senilis or chronic dermatitis solaris. One is that, exceptionally, one may find prickle cells and cell nests in typical rodent ulcer, and that in rare instances rodent ulcer may infect glands. But these exceptional occurrences may readily, Adamson says, be explained by regarding the rodent ulcer, with its tendency to imperfect repair by scarring, as itself a precancerous condition which may in rare cases in the same way as the scars of lupus vulgaris give rise to epitheliomatous growths.

The second fact is that it is not uncommon to find among the squamous-celled epithelioma of keratosis senilis other growths which are histologically indistinguishable from rodent ulcer, which are indeed basal-cell epitheliomata. But this does not constitute them rodent ulcers, and it may still be claimed that their situation on damaged skin and their mode of origin from the same distinguish them from rodent ulcers, which arise from embryonic cell-rests in certain situations and on skin not previously damaged by inflammation.

13. **Etiology of Endemic Cretinism, Congenital Goiter and Congenital Parathyroid Disease.**—Three important facts are noted by McCarrison in his experiments: (1) That out of 16 animals born of a goitrous mother which consumed fecal

filtrate prior to and during pregnancy, 3 were born cretins, while the 47 animals born in other cages showed no clinical or pathologic signs of this condition. (2) That of 31 animals, born of goitrous mothers which consumed either fecal anaerobes or the filtrate of a fecal emulsion, 15 were found to have congenital parathyroid disease. Of these, two-thirds were born of mothers consuming the anaerobic cultures, while one-third were born of a mother consuming a fecal filtrate which contained the toxic products of these anaerobes. The parathyroids were normal in 16 animals born of goitrous mothers in other cages. (3) Fecal organisms which grow aerobically on agar, while capable of causing marked hyperplasia of the thyroid gland, do not appear to be capable of producing any ill effect on the parathyroid glands.

Of the offspring of goitrous parents, then, a small percentage are born cretins; approximately 63 per cent. are born with congenital goiter, 32 per cent. are born with congenital parathyroid disease, and 33 per cent. are born with normal thyroid and parathyroid glands. McCarrison believes that cretinism and congenital goiter are due to the action of toxic substances derived from the intestines of the goitrous mother on the fetal thyroparathyroid mechanism. Cretinism represents the maximum, and comparatively rare, effect of these toxins; congenital goiter their minimum, and comparatively common, effect. Between these extremes all degrees of thyroid involvement may occur with or without associated swelling of the gland. Congenital parathyroid disease is due to the action on the fetal gland of the toxic products or organisms present in the intestine of the goitrous mother, which are capable of growth under anaërobic conditions.

### Sei-I-Kwai Medical Journal, Tokyo

*March 10, XXXIII, No. 3, pp. 13-19*

14 Operative Treatment of Hydrocele. S. Mizokami.
15 Fracture of Neck of Femur in Children. R. Yajima.
16 Floating Liver in Childhood. K. Matano.
17 Treatment of Ankylosis of Joint. G. Tashiro.
18 Treatment of Inguinal Hernia in Child. D. Takayasu.
19 Testicular Neuritis Following Gonorrheal Epididymitis. S. Yoshida.

### Bulletin de l'Académie de Médecine, Paris

*March 3, LXXVIII, No. 9, pp. 297-338*

20 Resolutions Adopted in Regard to Advising Restriction of Use of Poisons in Agriculture. Lucet and Others.
21 Experiences with Heated Antityphoid Vaccine. A. Chantemesse.
22 Hypertrophy of Pylorus in Adult, of Type Common in Infants. H. Hartmann.
23 Dermoid Cyst of the Inion; Two Cases. Walther.

*March 10, No. 10, pp. 339-382*

24 Typhoid Epidemic at Avignon; 673 Cases in Twenty-Five Days. Pamard.
25 *Rubber Grafts in Human Tissues. (Les greffes en cacutchouc.) P. Delbet.

**25. Engrafted Rubber Tissue.**—Delbet's idea is different from that of Fieschi who seeks to induce regeneration of tissues in the porous substance of a scrap of rubber sponge, as was described in these columns recently, 1914, lxii, 735. Delbet used a sheet of rubber tissue to reenforce the abdominal wall in treating a large hernia, and the rubber healed in place without any reaction. It is this apparently constant lack of irritation from rubber which seems to adapt it particularly for such operations. It seems evident, he says, that the motion and the chemical-physical conditions in the abdomen tend to preserve the life of rubber better than when it lies in a drawer. Like a living substance, it keeps better when it is functioning. His communication was summarized in the Paris Letter, April 4, p. 1106.

### Journal de Médecine de Bordeaux

*March 15, LXXXV, No. 11, pp. 173-186*

26 Colonial Recruits for French Army from the Medical and Military Points of View. (Réflexions sur l'incorporation du contingent créole.) A. Le Dantec.

### Presse Médicale, Paris

*March 11, XXII, No. 20, pp. 193-200*

27 Sterilization of Stools. (Désinfection des selles.) Arnould.
28 Mark-Time, Stepping and Other Spinal-Cord Automatic Reflexes. (Les réflexes d'automatisme médullaire chez l'homme.) A. Strohl.

### Revue de Chirurgie, Paris

*March, XXXIV, No. 3, pp. 233-340*

29 *Bile in Ascitic Fluid with the Bile Passages Apparently Intact. (Les cholépéritoines.) M. Guibé.
30 *Traumatic Spondylitis with Necropsy. (Maladie de Kümmel.) V. Balthazard.
31 Retrograde Strangulation of Intestine in Double Loop Hernia. (Hernie en W.) H. Welsch.

**29. Bile in Ascitic Fluid.**—Guibé reports the case of an elderly woman who had what the Germans call "bile peritonitis without perforation of the biliary passages." Necropsy revealed, however, that escape of bile into the peritoneum was probably the primary phenomenon, and that the ascites had developed in consequence of the presence of the bile. An epithelioma in the head of the pancreas had pressed on the bile passages, and the bile had worked its way through the walls, infiltrating first into the subserous cellular tissue and then seeping through the serosa itself. The bile does not seem to irritate as long as it is sterile, but when it becomes infected it is liable to set up fatal peritonitis. The trouble may have a stormy onset, simulating appendicitis or cholecystitis, or it may develop with a chronic course like ordinary ascites. Drainage alone was applied in twelve cases and six of the patients died. It seems wiser to open or remove the gall-bladder; the record of cholecystectomy in such cases is three deaths in thirteen cases. The bile passages may have perforated enough to permit the escape of the bile and then the minute perforations have healed again and not been discovered. But even admitting this for a number of the cases on record, there are still numerous cases in which the bile must have seeped out through the wall.

**30. Traumatic Spondylitis.**—Balthazard adds another to the few cases on record in which after a fall the patient complained only of vague pains in the lumbar region after the first. He walked home after the fall but by the sixth month he complained of girdle pains and there was a hump in the dorsolumbar region. He died from an intercurrent disease and necropsy revealed that the spine had been fractured; the body of one of the vertebrae had been crushed and the transverse lamellae broken, but the spinous processes were intact.

### Revue Mens. de Gynécologie, d'Obstétrique et de Pédiatrie, Paris

*February, IX, No. 2, pp. 81-160*

32 Study of the Mechanics of the Obstetric Forceps. L. Demelin.
33 Momburg's Belt Constriction in Treatment of Obstetric Hemorrhage; Three Cases. L. Pierra.

### Semaine Médicale, Paris

*March 18, XXXIV, No. 11, pp. 121-132*

34 *Medicinal Treatment of Tuberculosis. (Un traitement efficace et pratique de la tuberculose pulmonaire.) J. F. Larrieu.

**34. Medicinal Treatment of Pulmonary Tuberculosis.**—Larrieu says that treatment should aim to tone up the system in general, to check the development of tubercles and check expectoration by curing secondary infections, and to reestablish good digestion. Stimulants and tonics tone up the general system and encourage the patient while guaiacol and potassium iodid answer the second indication. The cooperation of the patient is necessary so that he will avoid any excesses in diet liable to bring on dyspepsia and avoid sudden changes in temperature, especially exposure to the cool evening air after a hot day or to cool air at any time when his garments are wet with perspiration. The poor are able to benefit just as much from a course of treatment like this as those able to go to expensive sanatoriums, but the treatment must be kept up perseveringly even long after the disease has been clinically cured. When patients have proved docile, he has found the treatment he outlines extremely effectual and practical in a number of years' experience.

His first prescription is a mixture of 6 gm. potassium iodid; 8 or 12 gm. potassium bromid; 0.03 gm. strychnin sulphate; 20 c.c. tincture of cinchona; 40 c.c. each of tincture of coca and tincture of kola, and 100 c.c. each of neutral glycerin and syrup of bitter orange peel. A teaspoonful of this is taken at breakfast for twenty days during each month, keeping it up for three months after all the local lesions have subsided in recent tuberculosis, and indefinitely in chronic tuberculosis and phthisis. The prescription can be modified by substituting some other flavoring or by using arsenic instead of the three first ingredients, especially in case of industrial tuberculous bronchitis. The above prescription can be supplemented by 0.25 gm. salol at the noon and evening meal to promote digestion. If the appetite is poor, during the periods of resting from the iodid prescription the patient might take nux vomica and Fowler's solution. Concurrently with this internal medication he gives subcutaneous injections of guaiacol with or without camphor or iodoform. The injection is made in the arm or back every five days at first and later every eight or ten days. This method of treatment suits the overwhelming majority of cases; it is comparatively convenient, and renders it possible for fully four-fifths of the tuberculous to continue at work, without the necessity for a fresh-air course. It has to be kept up almost endlessly, but when the patients see how they are gaining they seldom object to this. They must be warned that the subcutaneous injections are liable to be a little painful for a few seconds at first. When a complete cure has been realized, the medication can be suspended for longer and longer intervals each month. Larrieu does not give any statistics or clinical details beyond the above.

### Archiv für Gynäkologie, Berlin

*CII, No. 2, pp. 201-410. Last indexed March 21, p. 972*

35 *Improved Technic for Treatment of Prolapse by Interposition of Uterus. E. Wertheim.
36 Source of the Bleeding when Tubal Pregnancy Ruptures. Y. Taniguchi.
37 *Imperforate Genital Tract as Obstacle to Delivery. (Gynatresien in der Gravidität.) C. Ruge.
38 *Congenital Universal Hydrops. W. Lahm.
39 *Spontaneous Amputation of Tube or Ovary. (Spontanabtrennungen der weiblichen Adnexe.) M. Ogorek.
40 Reciprocal Relations between the Ductless Glands. (Die gegenseitigen Beziehungen einiger Drüsen mit innerer Sekretion.) L. Okintschitz.

35. **Operative Treatment of Prolapse.**—Wertheim here describes a modification of the technic with which the uterus turned over forward serves as a pad to close the gap in the pelvic floor, the bladder resting on its back. He has found that even with this technic the mouth of the uterus or the fundus may work loose and protrude. All this is avoided, he declares, by suturing the uterus all around when it is fitted to cover the gap. The operation thus becomes more "suturing the uterus in the gap" rather than the primary designation of "interpositio vesicovaginalis." He has applied this technic during the past year with increasing satisfaction. Two large plates and four illustrations in the text accompany the article.

37. **Gynatresia During Pregnancy.**—Ruge remarks that the genital canal may become closed in the course of a pregnancy from the pressure on and swelling of the parts. Complete closure of the hymen has been reported in three cases, and he has recently encountered a case of stricture and stenosis of the vagina. In another case there was a muscular stricture at the internal os and the woman died in eclampsia at delivery. She had borne four children, and was previously healthy. The eclampsia came on at the sixth month, and the obliteration of the internal os seemed to be the outcome of an inflammatory process.

38. **Universal Hydrops.**—In Lahm's case there were signs of syphilis in the new-born child, so the universal hydrops may be credited to this inherited taint in this case. A number of chemical and other causes may be responsible for it, and toxic substances in the mother's blood acting predominantly on the kidneys or blood-producing apparatus of the fetus. Pregnancy nephritis and syphilis are the factors most commonly involved.

39. **Amputation of the Uterine Adnexa.**—Ogorek has encountered two instances of this occurrence and has found ninety-seven cases recorded, all of which he analyzes. Torsion and strangulation are of course the direct cause and trauma is generally responsible for both, mechanical forces and gravity completing the work started by the trauma.

### Archiv für klinische Chirurgie, Berlin

*CIII, No. 4, pp. 871-1097. Last indexed March 28, p. 1055*

41 *Circumscribed Suppuration in Pleura and Lungs. (Die Therapie der Pleuraempyeme und Lungenabscesse.) E. E. Pribram.
42 *Dislocation of the Pelvis. (Beckenluxationen.) Heinemann and Siedamgrotzky.
43 *Kidney Tumors of Embryonal Origin. (Embryonale Nierengeschwülste.) Junkel.
44 *Dangers and Treatment of Abdominal Infection. (Abdominale Infektion, Passagestörungen und ihre Folgezustände.) E. Gelinsky.
45 The Obturator Nerve. (Die intrapelvine extraperitoneale Resektion des Nervus obturatorius und anatomische Studien über die Topographie dieses Nerven.) R. Selig.
46 *Experimental Puncture of the Heart. (Verwendbarkeit der Punktion des Herzens zur Hervorrufung experimenteller Klappenfehler.) H. C. Jacobaeus and G. Liljestrand.
47 Primary Angioma in Muscle. A. Serra.
48 *Acute Perforation of Gastric and Duodenal Ulcer. W. W. Florowsky.
49 Fat Graft to Arrest Hemorrhage. (Experimentelle Untersuchungen über freie Fetttransplantation bei Blutungen parenchymatöser Bauchorgane.) A. Hilse.
50 *Continuous Lavage of the Stomach. (Zur Daueraushcberung des Magens.) M. Grosser.

41. **Treatment of Suppuration in Pleura or Lung.**—Pribram gives full details of 100 cases in which operative treatment was applied for pleural empyema or pulmonary abscess at von Eiselsberg's clinic during the last thirteen years. These experiences emphasize anew the vital importance of early operative treatment in all suppurating inflammatory processes in the pleura and lungs; also the advantages of extensive local anesthesia and of differential pressure apparatus for operations on the lungs. Unless the process is a mild metapneumonic empyema or the operation is done in an emergency on a child, the process should be amply exposed and thoroughly drained, then covered with a light simple dressing. He warns against rinsing out the cavity at first, but says that a few weeks later it may be of advantage. The pure pneumococcus processes have the best prognosis; tuberculous processes make the greatest demands on the patience and perseverance of both patient and physician. He had 21 per cent. cured; 52.6 per cent. improved and 21 per cent. died of his thirty-eight patients in this group. One recovered completely under the Leysin sunshine and mountain air treatment.

42. **Dislocation of the Pelvis.**—Heinemann adds two more cases to the twenty-two on record in which the pelvic bones became dislocated, causing a puzzling train of symptoms. He gives roentgenograms of his cases to aid others in recognizing the trouble at need. The young man had been run over by a vehicle; the boy of 10 thrown from a wagon and hit by a large stone thrown also from the wagon. In both cases the pelvis was supposed to have been ruptured, but the Roentgen rays revealed the dislocation of one-half of the pelvis. In the man it had healed in an abnormal position, but the boy was seen soon after the accident and the dislocation was easily corrected by gradual weight extension into nearly normal conditions, and healed leaving scarcely a trace of a limp. Forcible reduction seems unwise on account of danger of injury of important parts. The gap in the symphysis shows comparatively little tendency to heal. There was no healing under six weeks' treatment in the case of the boy, and Heinemann thinks it might be as well to apply some operative measure here from the start, when the patient is seen soon after the accident. In old cases, wearing a higher sole seems the only thing to be done.

43. **Kidney Tumors of Embryonal Origin.**—Junkel reports two cases, a boy and girl of 2½, both recovering after removal of the large tumor weighing 650 and 860 gm. The first was an adenosarcoma, the other a fibromyosarcoma. Heinicke has compiled 138 tumors of this kind, but only one of the patients is known to be alive after an interval up to three years. Even this one case encourages the surgeon to operate, especially as the operation is always borne remarkably well.

44. **Dangers and Prevention of Abdominal Infection.**—Gelinsky's analysis of the experiences with ileus at the Charité in Berlin, shows that injury from toxic substances formed

during ileus is a greater danger than infection in case of ileus, as a rule. Also that meteorism must be regarded as a serious symptom as it may progress from paralysis of peristalsis alone to paralysis of the bowel. The laparotomy itself is absolutely harmless, he says; the danger from the general anesthesia required for the operation is much greater than from the incision itself. Local anesthesia may be used. When infection is already installed every effort should be made to close up or exclude the source of the infection. With local paralysis of the bowel, the excluded loop should be removed; if this is not possible it should be extensively drained. The injury done to peristalsis by the operation is best combated by early and systematic application of superheated air. This early after-treatment is the most reliable method at our disposal to date for starting up peristalsis anew when the changes are not absolutely irreparable.

46. **Experimental Valvular Disease.**—Jacobaeus reports his work in this line on one calf and eleven dogs; six of the animals survived the operation. He used a straight trocar with valve and cystoscope, the same technic as for laparothoracoscopy. There was no bleeding from the heart. A scrap from the heart lining or chorda or mitral valve was thus obtained. In one dog a large part of the median mitral valve was thus cut away and the dog rapidly recovered.

48. **Treatment of Gastric or Duodenal Ulcer.**—Florowsky writes from Odessa to report 4 operative cases from his own experience. He cites further 58 cases already on record in Russian literature. Collapse occurred on perforation in only 10 of the 41 gastric ulcers and in 6 of the 17 duodenal ulcers. There was a history of preceding stomach trouble in 16 of the duodenal cases and in 31 of the gastric cases; in some the perforation occurred like a bolt from a clear sky. He advocates injecting quinin at once after the operation as it stimulates the heart and peristalsis and promotes leukocytosis. Differentiation is best accomplished by seeking the negative symptoms which exclude other affections.

50. **Continuous Lavage of the Stomach.**—Grosser advocates introducing a retention stomach tube through the nose and thus keeping a constant flow of fluid in and out of the stomach as the best means available for combating acute atony of the stomach and duodenal-jejunal occlusion, postoperative paralysis of the bowel and ileus from adhesions or spastic contraction from peritonitic reflexes. The nose is first cocainized and then a soft oiled stomach tube with a lumen of 8 or 11 mm. is worked through the nose down into the stomach. As soon as it reaches there the stomach content generally spurts from the tube spontaneously. The stomach can then be rinsed out if desired; then a longer tube is attached to it and carried to a receptacle. Fluids can be supplied, he adds, by slow subcutaneous infusion, a drop at a time, of a warm isotonic salt solution, possibly with 4 per cent. grape sugar.

Grosser says it is more convenient to apply both the stomach tube and the infusion on the left side, leaving the patient's right hand free. With this retention tube the mouth is left free and the patient can talk, swallow and have his teeth brushed, while the method has a number of obvious advantages over the ordinary technic for lavage of the stomach. He has had amounts up to 5 liters thus drain away. Westermann has applied the procedure to fifteen patients, Kappis to ten and Grosser himself to nine. The tube was left in place for four days in one of his cases. Kappis and Westermann found traces of the gastric mucosa having been sucked into the openings in the tube in two cases, and they advise keeping the outlet on a level with the bed to prevent aspiration. Grosser's patients who had the pus reaccumulate in the peritoneum were beyond rescue and all died. He advises a trial of the retention stomach tube in case of a vicious circle after gastro-enterostomy.

### Berliner klinische Wochenschrift

*March 9, LI, No. 10, pp. 433-480*

51 *Pathology of Syphilis and Curative Action of Salvarsan. M. v. Zeissl.
52 *Tubercle Bacilli in the Blood-Stream. F. Klemperer.
53 Shellac Concrements in Gastro-Intestinal Tract. E. A. Hallas.
54 The Nissl Bodies. (Zur Chemie der Zelle. IV.) P. G. Unna and O. Gans.
55 Precocious Puberty Not Accompanied by Precocious Development of the Mind. A. Münzer.
56 Luetin in Diagnosis of Syphilis. (Intracutanreaktion mit dem Luetin von Noguchi. II.) Fagiuoli and V. Fisichella.
57 *Fivefold Increase Since 1900 in Abortions Requiring Hospital Treatment at Berlin. (Zunahme der Fehlgeburten.) Bleichröder.
58 Ethylhydrocuprein in Treatment of Malaria. (Chemotherapie bei Malaria.) G. Izar and R. Nicosia. Commenced in 9.

51. **Salvarsan.**—Von Zeissl cites historical records to show that when mercury was first applied in treatment of syphilis it aroused a crowd of objectors and for nearly a century had to fight its way again and again. As late as 1860, J. Hermann of Vienna still proclaimed that constitutional syphilis was the work of the mercury that had been given, and a committee of investigation was appointed by the Austrian minister of the interior to decide the question. Zeissl states that he has never had any serious injury result in any of the 1,000 cases in which he has given salvarsan intramuscularly or neosalvarsan intravenously. He has had exclusively good results with them, as he excludes from this treatment every patient presenting contra-indications. He reviews literature from years before the discovery of salvarsan, in which deafness, blindness or paralysis are reported from untreated syphilis alone, and also fatalities and mishaps after mercury.

52. **Tubercle Bacilli in Blood-Stream.**—Klemperer presents extensive clinical anatomic and experimental evidence to show that there can be no doubt that in most of all forms of tuberculosis the tubercle bacilli get into the blood occasionally, in small amounts. Their presence in the blood has no significance for diagnosis or prognosis any more than the skin tuberculin reaction in adults. Their presence in the blood seems to be important only from the standpoint of immunization processes.

57. **Increasing Number of Abortions.**—Bleichröder has been compiling and comparing the statistics in regard to women brought to the Berlin hospitals for treatment after abortion, omitting the abortions from syphilis. In 1900 the total was 317; in 1910, it had risen to 841, and this has doubled in the three years since, the figure for 1913 being 1,694. This increase is mainly among the younger women. His comment on these figures is that the birth strike (*Gebärstreik*) is evidently being conducted not by prevention measures alone but also by systematic abortifacients, *Abtreibung.* He does not give the figures as to the mortality at the various hospitals but states that among 504 abortions in 1912 at one maternity 240 were septic cases and the mortality was 12.5 per cent.

### Correspondenz-Blatt für Schweizer Aerzte, Basel

*March 14, XLIV, No. 11, pp. 321-352*

59 Action of Bromids. E. Bernoulli.
60 Universal Hydrops of the New-Born. (Zur Lehre der allgemeinen Wassersucht des Neugeborenen.) W. Lutz.

### Deutsche medizinische Wochenschrift, Berlin

*March 12, XL, No. 11, pp. 521-576*

61 *Progress in Causal Treatment. (Fortschritte der ätiologischen Therapie.) P. H. Römer.
62 *Analysis of Action of Radio-Active Substances on Mouse Cancer. A. v. Wassermann.
63 Negative Results of Inoculating Rabbits with Mouse Cancer. (Mäusekarzinomimpfungen auf Kaninchen.) H. Apolant and K. Bierbaum.
64 *Immunization against Anthrax. (Milzbrandimmunität.) E. Wernicke.
65 Nature of Immunity to Tuberculosis. P. H. Römer and C. Siebert.
66 Chemotherapy. (Spezifische Desinfektion und Chemotherapie bakterieller Infektionen.) J. Morgenroth and E. Bumke.
67 *Diphtheria Antitoxin in Bacilli-Carriers, etc. (Gehalt des Blutes an Diphtherie-Antitoxin bei gesunden Erwachsenen, Rekonvaleszenten und Bazillenträgern; Bedeutung der letzteren bei der Diphtherie.) R. Otto.
68 *Danger and Prophylaxis of Anaphylaxis from Diphtheria Antitoxin. K. Joseph.
69 Standardization of Serums. (Praktische Ergebnisse der Heilserumkontrolle.) K. E. Boehncke.
70 Alkali Releases Toxin from Combination with Antitoxin. (Wirkung von Alkali auf die Antitoxinverbindungen der Toxine.) H. Sachs.
71 *Partial Antigens. H. Much.
72 Regional Differences in Stature and Weight. (Körpergrösse und Körpergewicht des Menschen.) H. Schwiening.

61. **Ehrlich and Behring.**—By a curious coincidence, these two scientists were born March 14 and 15, 1854, and both had been trained together under Robert Koch, and each has received a Nobel prize. After their early work had brought fame to each, Ehrlich devoted himself to the study of cancer and Behring to tuberculosis, but nothing which seems to be of importance was achieved by either in these lines. Then Ehrlich turned to chemotherapy and salvarsan and Behring to diphtheria anew. His new vaccine, Römer says, seems to promise a means of actually stamping out the disease as small-pox has been eradicated. Of Ehrlich's chemotherapy, he remarks that even if salvarsan does not prove an effectual remedy against syphilis, in certain tropical diseases it has already proved its efficacy beyond question. All the German weeklies of the above date do homage to Ehrlich and Behring.

62. **Action of Radio-Active Substances on Cancer Cells.**—Wassermann's conclusions from his analysis of the action of radio-active substances on mouse cancers are that the cancer cells are not killed but are rendered incapable of further growth. There is no further division, and the cell thus rendered sterile grows old and dies of itself and is removed by the normal cell-destroying forces of the organism. The greater the tendency in the cell to regeneration and proliferation, the more susceptible it is to this action of the radio-active substances. But the latter act only directly, and hence deep-seated cells do not seem to feel their influence at all, not even when reenforced by injection of metal salts to generate secondary rays.

64. **Immunization against Anthrax.**—Wernicke states that he has succeeded in rendering guinea-pigs immune to virulent anthrax. The immunization with other animals was less complete. It is particularly noticeable as guinea-pigs seem to be peculiarly susceptible to anthrax.

67. **Diphtheria Antitoxin in the Blood under Various Conditions.**—Otto's research confirms the assumption that a single attack of diphtheria does not cause the production of large amounts of antibodies. For this, repeated, possibly minute infections are more effectual. For example, physicians and nurses having to do with diphtheria patients gradually acquire a high antitoxin content in their blood serum. Bacillus carriers have a high antitoxin proportion. When there is no history of diphtheria, the person must have been subjected to repeated, minute infections which passed over with minimal or misinterpreted symptoms. This is proved beyond question by the high antitoxin content in the serum at the time and after the bacilli are found.

68. **Danger and Prophylaxis of Anaphylaxis from Antitoxin.**—Joseph insists that the danger of anaphylaxis in man has been much exaggerated; it is incorrect to assume that what is observed in extremely susceptible small animals applies to man. Only with much debilitated children and by intravenous injection of antitoxin a second time, is there danger. Heubner declares that with otherwise healthy children there need be no cause for anxiety on reinjection of antitoxin by the subcutaneous or intramuscular route. The attempts to avoid trouble by iodizing the antitoxin, using an oil vehicle, pasteurizing or removing the albumin have failed to prevent anaphylaxis in small animals while they materially lowered the antitoxin strength. He reiterates that the dread of anaphylaxis is baseless and that even if it were to be feared, we have means at our command to ward it off. Among these he enumerates the use of antitoxin obtained from cattle instead of horses. This could be used in prophylaxis, reserving horse antitoxin for use in case of actual diphtheria. Another way to ward it off is by means of the Neufeld-Besredka method of inducing anti-anaphylaxis by a preliminary subcutaneous injection of a minimal dose of the antitoxin. This prepares the body in such a way that the injection of the curative dose of antitoxin a few hours later has no power to elicit phenomena suggesting anaphylaxis. Still another way is by saturating the reacting body according to Friedberger and Mita by slow intravenous infusion of serum, a drop at a time. Either of these methods renders the sensitized organism refractory to the antitoxin regardless of the route by which it is introduced.

71. **Partial Antigens.**—Much says that not only the tubercle bacillus but a number of others can be separated into a soluble filtrate and insoluble sediment, each of which possesses the properties of an antigen. The dialysis procedure for serodiagnosis utilizes sediment; the optic procedure the filtrate. The sediment contains both albumin and fat; and the fat is both a neutral fat and a lipoid. For all of these, antibodies are generated, each partial antigen inducing production of its own partial antibody. The discovery of these facts and of cell immunity have opened new horizons for vaccine therapy. They have demonstrated among other things, he continues, that syphilis causes injury of cells and that the Wassermann reaction is the expression of this active injury of cells. It is not specific for syphilitic infection but it is a valuable index for treatment as the active destructive processes going on in the cells must be arrested to prevent further damage. If the Wassermann were really an immunity reaction, as some claim, it would be impossible to change it to a negative under the influence of treatment.

## Jahrbuch für Kinderheilkunde, Berlin

*March, LXXIX, No. 3, pp. 261-384*

73 Muscle Pathology in Children. N. Krasnogorski.
74 *Increasing the Fat Content in Infant-Feeding. (Möglichkeit einer Fettanreicherung der Säuglingsnahrung.) A. Niemann.
75 Mother's Milk Combines Less Hydrochloric Acid than Cow's Milk. (Salzsäurebindungsvermögen von Frauen- und Kuhmilch.) H. Aron.
76 Growth of Animals after the Nursing Period on Mixed and on Carbohydrate Diet. H. Brüning.
77 Clinical and Morphologic Study of Congenital Atresia of the Tricuspid. E. Wieland.

74. **Increasing the Fat Content of Infants' Food.**—Niemann holds that substitutes ordinarily used for mother's milk contain much less fat than the mother's milk itself, and that the tendency is to increase the carbohydrates and decrease the fats. He believes that such injury as does result from too great fat content is due to the lower fatty acids, and he offers a method of increasing the fat-content that obviates this. It consists in the addition to the food of butter that has been thoroughly and repeatedly washed with cold water until the acid reaction has disappeared. The food—modified milk, malted gruel or whatever it is—should be heated, the butter added, and shaken so that it forms a fine emulsion. Enough butter should be added to bring the fat-content up to that of mother's milk.

## Medizinische Klinik, Berlin

*March 8, X, No. 10, pp. 401-442*

78 *Inflammatory Processes Forming Tumors in the Abdomen. (Entzündliche Geschwülste der Bauchhöhle.) F. Hülscher.
79 *Pathogenesis of Stuttering. (Das Stottern eine Zwangsneurose.) E. Trömner.
80 *Diphtheric Process without Membrane. (Durch den Diphtheriebacillus hervorgerufene blenorrhoische Prozesse, speziell in der kindlichen Vagina.) E. Kobrak.
81 Modification of Pasteur Treatment of Rabies. (Modifikation der Lyssaschutzimpfung und deren Resultate in der Krakauer Ansalt.) O. Bujwid.
82 Findings with Abderhalden's Serodiagnosis Suggest that Epilepsy is of the Nature of Anaphylaxis. L. Grigorescu.
83 Experimental Syphilis in the Rabbit and Laboratory Infection of Two Attendants. (Histopathologie der experimentellen Kaninchensyphilis.) F. Graetz and E. Delbanco.

78. **Inflammatory Processes Forming Tumors in the Abdomen.**—Hölscher reports fourteen cases to illustrate the deceptive clinical pictures presented by such tumors of inflammatory origin. Even when the abdomen has been opened, it is not always easy to differentiate them. In one case a sarcoma in the omentum seemed beyond question, but the man refused to permit any operation and in two months the tumor disappeared entirely under bed rest, moist heat, potassium iodid and an iodin salve. Except for slight constipation, the man has been in good health since for fifteen years. In this and in several of the other cases, the tumor developed at a point on which there was pressure in working at a trade, and the tumor simulated inoperable cancer of the gall-bladder, uterine adnexa or stomach. A stricture in the rectum is sometimes responsible for conditions above which develop into an inflam-

mation tumor. His latest case was peculiarly instructive; the tumor was back of the right Poupart's ligament and caused no pain. An old scar in the groin was explained as the result of trauma and syphilis was denied. The Wassermann reaction was negative in the blood. The patient was a man of 41 and after a few months violent headache developed and the Wassermann reaction was found positive in the cerebrospinal fluid. Specific treatment for syphilis was pushed at once and all the symptoms promptly subsided except that a trace of the tumor can still be palpated. Most of these inflammation tumors are postoperative; sometimes two or three years may have elapsed since the operation. They develop slowly without fever or general disturbance unless the accelerated pulse points to an inflammatory process somewhere. They are always anchored solidly by adhesions and the adjoining organs become rapidly involved. Incision, not excision, is the principle for treatment and an exploratory laparotomy should not be too long delayed.

79. **Stuttering an Obsession-Neurosis.**—Trömner regards stuttering as a motor *Zwangsneurose* or obsession-neurosis, similar in nature to *tic impulsif*. In his study of ninety cases he found hereditary influences marked in 85 per cent. including forty with a simple neurotic taint, thirty-four with inherited stuttering and eleven with both. Infectious diseases and trauma have a marked influence on the neurosis. One of his patients began to stutter at 2 but overcame the tendency in his first year at school. It returned at 11 after an injury to the head, but was again conquered. It returned anew at 13 after typhoid and again at 25 after articular rheumatism. Damp weather and fatigue are liable to aggravate stuttering. He defines it as a localized form of obsession-neurosis, a pure conditional functional disturbance, which shows improvement when the attention can be diverted away from it. The child begins to stutter merely from some awkwardness in speaking, from ignorance of or forgetting the proper word, and this gradually becomes fixed as a pathologic habit. This is followed by the stage in which the effort to speak with as little stuttering as possible causes abnormal contractions of the muscles of the face and body, the obsession inhibitions having now an obsession motor accompaniment. The third and extreme stage is when autosuggestion or annoyance and dread amounting to an actual phobia magnify all the phenomena.

80. **Diphtheria of Vagina Simulating Gonorrhea.**—Kobrak relates that after the death of a young child for laryngeal diphtheria, the father and aunt developed the same but recovered under diphtheria antitoxin. In the first case there was no formation of false membranes but diphtheria bacilli were found in each in pure cultures. In some other cases related suppuration in the nose or nasopharynx was the only symptom revealing the diphtheria and the cases simulated severe influenza, but recovery was soon complete under antitoxin. These cases of diphtheria without membrane production gave the clue to and permitted promptly successful treatment in two cases observed in the course of the last six months in which little girls of 9 had a vaginal affection simulating gonorrhea in every respect. The children complained first of smarting in the vulva, increasing for three days. Then inspection revealed that the hymen and accessible mucosa looked exactly like the throat in diphtheria minus the membrane, and smears showed diphtheria bacilli. Under antitoxin and chamomile tea or mercurial sitz baths normal conditions were restored in ten days.

### Monatsschrift für Kinderheilkunde, Berlin

*XII, No. 8, pp. 453-532*

84 *Treatment of Spasmophilia in Children. Bernheim-Karrer.
85 No Special Relation between Spasmophilia and Whooping-Cough. B. Erlanger.
86 Modern Theories of Infant Nutrition as Related to Practice. [illegible]
87 [illegible]t. A. Orgler.
88 [illegible]eple-Shaped Skull. K. Hochsinger.
89 [illegible]erebrospinal Fluid in Hydrocephalus [illegible] and H. Mautner.
90 [illegible] a Symptom of Alimentary Intoxi[illegible]
91 [illegible]nus Extracts. R. Fischl

84. **Spasmophilia in Children.**—Bernheim-Karrer recommends a combined treatment of spasmophilia with phosphorized cod-liver oil and milk curds from which the whey has been removed by washing with water, thus removing all mineral salts. He gives histories and tables for twelve cases in which he obtained a cure by this method; in nine of them within a week, twice at the end of the second, and once in the fourth week. The electrical reaction returned to normal. There was loss of weight under this diet, but never so great as to be alarming and it was soon compensated for on return to full milk diet.

### Münchener medizinische Wochenschrift

*March 10, LXI, No. 10, pp. 513-576*

92 **Salvarsan Treatment of Syphilis in the Navy.* (Die bisherigen Erfolge der Salvarsanbehandlung im Marinelazarett zu Wik.) Gennerich.
93 *Mode of Action of Salvarsan and Mercury in Syphilis. E. Schreiber.
94 *Salvarsan in Cerebrospinal Syphilis and Tabes. G. L. Dreyfus and G. Iwaschenzoff.
95 *Technic for Sterilization of Syphilis with Salvarsan. Leredde.
96 *Subcutaneous Injection of Neosalvarsan. Wechselman and Eicke.
97 *Intravenous Injection of Neosalvarsan. J. Katzenstein.
98 Technic for Injection of Concentrated Solution of Neosalvarsan. R. Seyffarth.
99 *Reinfection after Recovery from Syphilis.* E. Hardrat.
100 Quinin Intoxication not Anaphylaxis. (Zur Frage Arzneiüberempfindlichkeit.) A. Pöhlmann.
101 Fracture of Base of Skull Involving Mastoid Process, and Treatment. (Ueber Schädelbasisfrakturen mit Beteiligung des Warzenfortsatzes.) C. Kirchner.
102 *Reply to Critics of Serodiagnosis of Pregnancy. E. Abderhalden.
103 The Medical Curriculum. (Probleme des medizinischen Unterrichts.) F. Moritz. Commenced in No. 9.

92. **Experiences with Salvarsan in the Navy.**—Gennerich remarks that conditions are particularly favorable in the navy for study of syphilis and the effects of treatment, as the men are under such close supervision during their three or four years of service. He then gives the details of cases in which salvarsan has been given at the Kiel Marine Hospital, classifying them under numerous headings and devoting nearly ten pages to his experiences. He excludes all cases under observation for less than a year after treatment. There were two deaths among the 1,200 cases of the nearly four years since salvarsan was introduced; one patient died from embolism, one from a dermatitis with ulcerative enteritis and stomatitis. Both had been given intensive preliminary treatment with mercury and then three injections of salvarsan. There was no disturbance in vision or hearing in any instance. In obstinate cases of meningocerebral syphilis, that is, with moderately severe changes in the fluid, he treats by endolumbal injections every third week of 6 or 8 c.c. of a solution of 0.15 c.c. neosalvarsan in 300 c.c. of physiologic salt solution diluted one-half with cerebrospinal fluid. His experience with sixty-seven of these endolumbal injections has been very favorable. He says that it has proved a weapon against syphilis such as we have never had before. The greatest progress, however, has been realized in aborting the disease; this can be done now in six months at most and in his experience the cure has proved durable in 94 or 97 per cent. of the cases. Seventeen of the men contracted the disease anew from three months to three years after all tests had shown them to be completely cured.

93. ***Mode of Action of Mercury and Salvarsan.***—Schreiber's pharmacologic and clinical research, he states, has shown that mercury and salvarsan complete each other. The salvarsan kills all the spirochetes it can reach while the mercury promotes the immunity reactions.

94. **Salvarsan in Syphilis of the Central Nervous System.**—Dreyfus has made 3,000 intravenous injections of the salvarsan preparations in 250 patients and has had but one mishap. This was early in his experience and it had a favorable outcome at last. He combines the salvarsan with mercury and iodid, and has had very encouraging results to date in numbers of the cases. He enters into full particulars of indications and cases. With tertiary cerebrospinal syphilis he says that negative findings in the fluid show that nothing can be hoped from treatment. The lesion is already arrested and irreparable changes are installed, with rare exceptions.

Iwaschenzoff reports experiences with 130 cases which confirm, he says, the undoubted benefit from salvarsan in cerebrospinal syphilis. He advises to begin with small doses. Among 39 patients with myelitis, 8 were practically and 11 nearly cured; 4 had some of their symptoms retrogress; no benefit was apparent in 14; the condition grew worse in 1 patient and another patient died. In the fatal case, if the interval between the injections had been longer (seven days) possibly the focal reaction might have subsided more completely.

95. **Treatment of Syphilis.**—Leredde insists that treatment to be effectual must be begun very early and be vigorous and prolonged, the patient kept under medical supervision for years. He states that some of his tabetic patients have had thirty or even forty injections of salvarsan or neosalvarsan, and the Wassermann reaction and cerebrospinal findings finally became negative and the tabes seems to be permanently arrested.

96. **Subcutaneous Injection of Neosalvarsan.**—Wechselmann and Eicke wonder that more do not adopt the technic which they have applied in so many cases that they have now a record of 7,000 such injections. The important point is to deposit the fluid actually on the fascia. They have dropped mercury completely for years in treatment of syphilis, and claim that their results are superior to those of others who still cling to mercury. Six typical cases are tabulated to show the actual results.

97. **Intravenous Injections of Neosalvarsan.**—Katzenstein emphasizes that we cannot expect to eradicate the spirochetes entirely at one course of treatment when the cerebrospinal nervous system is already involved. Treatment must be resumed again and again. He adds further that the Wassermann reaction is chiefly important for the knowledge it imparts that syphilis is still lurking in the system when all symptoms have subsided.

102. **Reply to Criticism of Dialysis Serodiagnosis.**—Abderhalden replies to Flatow, Kämmerer and others, pointing out special features in their published technics which show that they misunderstand the principle of the method, and hence that their findings cannot be compared with those obtained with his technic.

### Wiener klinische Wochenschrift

*March 5, XXVII, No. 9, pp. 197-220*

104 Infantile Scorbutus. W. Wernstedt.
105 Production of Special Precipitins in Artificial Cultivation of Tissues. P. Przygode.
106 Extensive Gap in Tendon in Forearm Bridged with Fascia. [illegible] Sehnensersatze durch freier Fas- [illegible] Goblet.
107 *[illegible] the Blood in Treatment of Cancer. (Die Lehre von der humoralen Entstehung der Karzinome und der Einfluss dieser Lehre auf die Therapie.) A. Theilhaber.
108 Pathogenicity of Capsule Bacilli. D. Natonek.

*March 5, No. 10, pp. 221-260*

109 Importance of Roentgenotherapy for Internal Medicine. G. Forssell.
110 The Meiostagmin Reaction. L. Arzt and S. Zarzycki.
111 Acute Ulceration of the Vulva. S. Grosz and R. Volk.
112 *Segregating the Blood in the Limbs in Treatment of Cardiovascular Disturbances. (Behandlung der Zirkulationsstörungen mit "Abschnürung der Glieder" und "Phlebostase.") J. Tornai.
113 Symptoms of Uremia with Kidney Disease. J. Feldner.
114 Prophylaxis of Plague at Trieste. M. Gioseffi.

107. **Importance of Modifying the Blood in Malignant Disease.**—Theilhaber has been proclaiming for five years that among the factors contributing to cancer, some change in the juices of the body is evidently of importance, and that in treatment all should be done to improve the condition of the blood and blood-producing organs and also to improve the circulation through the region of the cancer. He is convinced that the insufficiently oxidized and injurious products of metabolism accumulating in the body play an important part in the development of myomas. The defective functioning of the blood-producing organs cooperate in the production of cancer, as in these abnormal conditions the antibodies which should be on hand to protect the tissues are not produced in adequate amounts. This is one reason why the predisposition to cancer increases in the elderly, as their blood-producing organs are becoming atrophied. On this factor are superposed the poverty of cells and the defective blood-supply in the connective tissue, anemia of this kind being found an invariable precursor of cancer. These same causes, poor blood-supply and scanty cells, are often the cause of recurrence after radical removal of the cancer. Research has been reported which showed that the predisposition to cancer in animals was materially enhanced by removal of the spleen, while it was reduced by removal of testicles and ovaries. Animals already bearing cancer showed unusually rapid growth of the process after splenectomy. Venesection, by stimulating blood production, aids in warding off recurrence of cancer in animals (Fichera and Cimeroni). Theilhaber thinks that any method is doomed to failure which leaves out of account the abnormal condition of the body fluids. He makes a point of applying diathermia, that is, heat in the depths by electricity as a preliminary to roentgenotherapy. He applies it to the cancer and also to the spleen in order to stimulate the blood production. He supplements this by injection of thymus, uterus and spleen extracts. These organ-juices stimulate the functioning of the blood-producing organs and induce strong leukocytosis. At the same time they seem to have a cytolytic action on cancer cells. He has been using thymus and uterus extract for four years and his experiences have shown that by the above combined measures cancer can be favorably influenced. The pain and bleeding diminished, many inoperable tumors subsided and some disappeared entirely. As antibodies develop it is wise to change the measures occasionally. The injections of uterus extract at first abolished the pains, reduced the discharge and improved the general health; after a few months what was left of the cancer seemed to reach a stationary phase and no further influence on it was evident. Changing then to spleen extract, was followed by renewed improvement, or vice versa. As these injections are effectual in palliative treatment of inoperable cancer, and prevention of occurrence, even without radiotherapy, they can be placed in the hands of the general practitioner as means with which he can hope to prevent recurrence after operation, improve inoperable cancers, and cure them completely in many cases. The circumstance that the genital glands seemed to favor the growth of the malignant tumors, has led him to supplement the above measures by means to induce the ovaries to atrophy, that is, by exposure to the Roentgen rays. He adds that exposure of the testicles might have a similar favorable effect in cancer in man.

112. **Segregation of the Blood in the Limbs as Therapeutic Measure in Heart Disease.**—Tornai remarks that this measure is proving more and more satisfactory and a powerful aid in relieving the heart of a large part of its work for an hour or so morning and afternoon, giving it a chance to recuperate in comparative peace. It is only three years since he called attention to the advantages of this means of combatting congestions but the method has been widely adopted since. It has been applied to a hundred patients with disturbances in the circulation at the university medical clinic at Budapest, where he is assistant. He gives several illustrations of the broad band and automatic U buckle which he uses, applying constriction to the four limbs at once.

### Zeitschrift für Kinderheilkunde, Berlin

*X, Nos. 2-4, pp. 81-358. Last indexed March 7, p. 819*

115 Necropsy Reports on Four Infants. (Kasuistik aus der Pathologie des Säuglingsalters.) O. Reinach.
116 So-Called Rumination in Infants. J. C. Schippers.
117 Rosenbach's Tuberculin in Tuberculosis in Children. C. Beck.
118 Case of Webbed Fingers and Toes and Deformity of the Ears. (Fall von Arachnodaktylie mit Schwimmhautbildung und [illegible] heldeformität.) E. Thomas.
119 [illegible] of Flesh in Children. J. Husler.
120 [illegible] arth.
121 [illegible] nination of the Bone-Marrow of [illegible]
122 Disturbances in Nutrition of Infants from Excess of Albumin. (Der Eiweissnährschaden des Säuglings.) E. Benjamin.
123 Nutrition Experiments with Friedenthal's Milk. N. Bahrdt.

### Zentralblatt für Chirurgie, Leipsic

*March 14, XLI, No. 11, pp. 465-496*

124 Implanting Nerve in Muscle. (Die direkte Einpflanzung des Nerven in den Muskel.) Heineke.
125 Etiology of Appendicitis. A. Simin.

### Zentralblatt für Gynäkologie, Leipsic

*March 14, XXXVIII, No. 11, pp. 393-424*

126 *Roentgenotherapy of Myoma. (Versuche, die Heilungsdauer bei der Myombehandlung durch Steigerung der verabreichten Röntgenmengen noch weiter abzukürzen.) E. v. Graff.
127 *Radiotherapy of Uterine Cancer and Hemorrhage. L. Landau and E. Kaufmann.
128 Instrumental Dilatation of the Cervix. (Ein neues Dilatationsinstrument.) G. Grotte.

**126. Roentgenotherapy of Myoma.**—Graff reports experiments with various technics, especially attempts to enhance the effect and shorten the course of treatment by increasing the dosage and the number of points for cross-fire. The best results seem to be obtained with cross-fire from eight or ten points, each covering considerable area.

**127. Radio-Active Substances in Treatment of Uterine Cancer and Hemorrhage.**—Landau shrinks from radiotherapy alone for an operable uterine cancer. He says that vaginal hysterectomy must not be burdened with the mortality from abdominal hysterectomy. By crushing the tissues each side of the uterus, a broad strip becomes necrotic and microscopic germs in it are killed. He has found metastatic nodules in the fundus of the uterus, unreachable by the rays, while the thickened uterus walls interfere with the penetration and action of the rays. When the uterus is removed through the vagina, the tissues each side can be rendered necrotic and the stumps brought down and sutured in the vagina, thus rendering the deeper tissues accessible to the rays.

Kaufmann reports a case every particular of which seemed to indicate a bleeding uterine myoma. Both tubes and ovaries could be felt of normal size and consistency. Roentgenotherapy was advised but the patient preferred operative treatment to hasten her return to her distant home. So at her wish the abdomen was opened. Instead of the expected myoma, an extra-uterine pregnancy was found, adherent to the exterior of the uterus; both tubes and ovaries were sound. The ovum was intact. The case impresses anew the necessity for caution with radiotherapy in gynecology. The disastrous consequences that would have followed mere radiotherapy in this case are obvious.

### Gazzetta degli Ospedali e delle Cliniche, Milan

*XXXV, Nos. 30-33, pp. 313-352*

129 Importance of Institutional Care for the Tuberculous. (Alcune osservazione intorno a la vita nosocomiale dei tubercolosi.) D. Soldi.
130 Action on the Kidneys of Spinal Anesthesia. (Azione sul rene della rachianestesia novocainica e tropococainica.) R. Mosti.

### Riforma Medica, Naples

*March 7, XXX, No. 10, pp. 253-280*

131 Echinococcus Disease. (Contributo allo studio delle cisticercosi.) V. Aloi.
132 Value of Wright's Serodiagnosis. L. Ferro.

### Brazil-Medico, Rio de Janeiro

*February, XXVIII, No. 8, pp. 71-80*

133 *Reliability and Convenience of Ambard's Formula for Estimation of Kidney Functioning. (A proposito da constante de Ambard.) N. Barbosa. Commenced in No. 7.

**133. Ambard's "Uremic Constant."**—Barbosa adds his testimony to the value of this method of estimating the functional capacity of the kidneys. It was described in these columns March 7, 1914, p. 813.

### St. Petersburger medizinische Zeitschrift

*March 1, XXXIX, No. 5, pp. 61-72*

134 Purulent Ascites Causing No Symptoms with Carcinosis of the Peritoneum. B. Ottow.
135 Chronic Cystic Mastitis. A. Bertels.
136 Massage of the Head and Neck Often Useful. F. Klau.
137 Inherited and Familial Tendency to Masturbation. J. B. J. Zimkin.

### Hospitalstidende, Copenhagen

*March 11, LVII, No. 10, pp. 289-320*

138 *Operative Treatment of Internal Echinococcus Disease. G. Magnusson. Commenced in No. 9.
139 Improved Hemoglobin Scale. (Hæmoglobinbestemmelsesmetoder og Forslag til en saadan.) N. L. Petersen.

**138. Treatment of Echinococcus Disease.**—Magnusson discusses the various technics called for by different locations and varying conditions in individual cases, the aim in all being to destroy the parasites first, possibly with formaldehyd, and then suture the lips of the cyst to the wound, supplementing this marsupialization by finally burying the closed capsule. It may be necessary to attack the cyst both from the rear and the front, especially with kidney cysts or multiple cysts anywhere.

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140 Electrocardiography. L. S. Fridericia.

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141 *Deforming Osteochondritis of the Hip-Joint in the Young. P. F. Møller.

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142 Retention of Membranes with Delivery at Term. (Retention af Aeghinderne ved den rettetidige Fødsel.) P. Guildal.
143 Amputation with Diabetic Gangrene. A. Trolle.

**141. Deforming Osteochondritis in the Young.**—Møller states that attention has been called to this affection only recently. The youngest patient in the 27 cases on record was over 3, the oldest 13. Boys are more frequently affected than girls, and the trouble affects usually only one hip-joint. Swelling and pain in the joint may be the first symptoms but in 8 of Perthes' 15 cases there was no pain; in the others there was mild pain, at times, radiating to the knee. In Møller's 2 cases one child complained of pain at first, but it disappeared under treatment, and the other had no pain. In all the cases—and this is an important point in differentiation—the children ran around with their mates and made no effort to spare that leg, even when there was some tendency to pain in it. The gait may suggest that of congenital dislocation of the hip-joint, the body tilts when the patient steps on the leg affected and—most important of all—active and passive bending of the leg causes no disturbance but abduction is almost impossible while adduction and rotation are restricted in varying degrees but seldom very pronounced. The limb can be flexed without the least pain but occasionally there is transient tenderness at the line of the joint. This was marked in one of his cases but in none of Perthes'. There is no crepitation but a slight tendency to atrophy of muscles may develop in time.

The roentgenograms given show that the findings are specific and pathognomonic. They suggest an infectious process developing at a point of lessened resistance from mechanical irritation or disturbance in the blood-supply. The hindrance to abduction seems to disappear under general anesthesia, so that this may be ascribed to muscular contraction. The difficulty in abduction and the restricted rotation and adduction soon reach their highest point and then persist unmodified for months or years. Then the affection gradually heals and the gait becomes normal once more. The trouble has certain features which distinguish it from mere deforming arthritis. The process seems to develop in the interior of the head of the femur and, unlike deforming arthritis, in time progresses to a spontaneous cure with restoration of joint function. There is no doubt that many cases of this kind have been treated for tuberculous coxitis, and the final recovery has been credited to the treatment applied. Even when the child gives a positive tuberculin reaction, this need not indicate that the affection in question is of tuberculous origin. The dystrophic changes which always accompany tuberculous coxitis are not apparent in the roentgenograms, and the bone changes of tuberculosis never appear. As the affection in question does not spread, it seems probable that it may originate in some nutritional disturbance in the region, some lesion of an artery interfering with the normal blood-supply. A history of trauma was known in 11 of the 27 cases he analyzes. No signs of rachitis were found in the majority and nothing to indicate inherited syphilis in any instance. Treatment must be restricted to massage and measures to prevent atrophy, especially of the abductors. Only when there is excessive pain or deformity are operative measures justified.

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# INFLAMMATION OF THE GALL-BLADDER

## ITS CAUSES, SYMPTOMS AND RESULTS *

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Inflammation of the gall-bladder, like many other inflammatory affections, varies so much in grade that certain mild forms do not cause appreciable symptoms, while it may be so severe as to justify the adjective "fulminating." In either event the mischief wrought corresponds with the degree of severity.

Its causes are those usual to inflammation, most frequently some pathogenic organism favored or not by local irritation of a mechanical kind. Perhaps the most common cause is the typhoid bacillus, which creeps up the common duct from the bowel. The favoring cause may be gall-stones preexisting in the bladder, or they alone may irritate enough to light up an inflammation. Again, there may be inflammation in adjacent parts which extends *per contiguum* to the gall-bladder. The variety associated with typhoid fever is most familiar to us and commonly ushers itself with a chill and fever, with pain and tenderness in the neighborhood of the gall-bladder. Successive attacks may occur, each one milder than the preceding. The milder grades commonly terminate in resolution or at least in partial resolution, some cases persisting a longer time. Such a remnant may result in alteration of secretion which leads to precipitation of the solids of the bile and the formation of calculi.

The severest or fulminating form often terminates in abscess, which, if unrecognized, may rupture into the peritoneal cavity, producing shock and death, although at times life is saved by operation promptly performed, even after rupture. Next to the typhoid bacillus the colon bacillus is a frequent cause of cholecystitis.

A result appreciated comparatively recently is adhesion of the gall-bladder to adjacent viscera, now recognized as a frequent cause of pain in the right upper abdominal quadrant, formerly unexplained.

The most important consequence of inflammation of the gall-bladder, because of its frequency and further consequences, is cholelithiasis. Cholelithiasis may arise independently of inflammation of the gall-bladder, or at least with symptoms so mild as to be unrecognizable. In either event the immediate cause is such perversion of secretion as results in the precipitation of cholesterin and lime-salts and the formation from these of calculi. Naunyn called our attention to the fact that cholesterin and lime-salts are a secretion of the mucous membrane of the gall-bladder and ducts as well as of the liver, and that this source is especially active when the mucous membrane is in a state of active inflammation.

We should not overlook the fact also that there are other predisposing causes which need only be mentioned in passing, such as sedentary habits and lack of exercise, tight lacing, child-bearing and abdominal tumors. All of these contribute to explain the greater frequency of cholelithiasis in women than in men, four times as often. The excessive use of fatty, starchy and saccharine food is also said to favor gall-stone formation.

It is especially cholelithiasis due to active cholecystitis to which I wish to call attention because of its great practical importance not only on account of the suffering it entails, but also because of more serious consequences which have not been sufficiently emphasized, namely, its tendency to the production of cancer and other morbid anatomic states of the biliary passages.

The causal relation of stones in the gall-bladder and biliary passages to carcinoma of these localities has for some time been regarded as settled, and no one now denies that gall-stones may be an exciting cause of cancer in their neighborhood, but I do not think that the profession at large has been strongly enough impressed with the importance of early operation for removal of the offending calculi. The practice so long universal of waiting for further developments, or until direct danger to life is evident, is still too general. Realizing that many lives are thus sacrificed that might be saved and that the voice of the physician is sometimes heeded by the conservative general practitioner more than that of the surgeon, I thought that I might help those who are hesitating, by reporting my own experience, with reasons for my conversion to the belief that in every case of well-determined cholelithiasis, operation should be promptly performed with a view to averting cancer as well as relieving suffering and averting less serious complications.

In illustration, I append the history of three cases:

Case I.—Cholelithiasis; carcinoma of the gall-bladder and liver.—Mrs. D. was seen in consultation with Dr. H. G. Norton of Trenton in December, 1906. Her mother died of cancer. The daughter reports an attack of dysentery with nausea, loss of appetite and vertigo while at the seaside the previous summer. Otherwise her health had been fairly good. Dr. Norton saw her for the first time, November 11, for an obstinate cough contracted three weeks earlier. At that time she appeared to have no other ailment, but a couple of weeks later he discovered a prominence in the right hypochondrium. About this time, too, the cough grew worse, but later yielded somewhat to treatment. The patient had no pain in the region of the liver until about the time of my visit to her in December. There were no signs of pleuritic disease or deep-seated involvement of the lungs. Her temperature during this preliminary period was from 99.5 to 101 F. Soon after my visit her appetite failed and drowsiness supervened. She was disposed to constipation but there was no jaundice, nor were there clay-colored stools. The urine was reported normal. Subsequently to my visit the patient developed vertigo and some delirium.

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* Read before the Philadelphia County Medical Society, March 11, 1914.

On account of the hepatic enlargement, carcinoma of the liver was suspected, although there had been no jaundice or other symptom of disease of the liver unless the vertigo and loss of appetite be so regarded. Because of the surgical aspect of the case, Dr. John G. Clark was asked to see the patient. He advised operation and made a section displaying the gall-bladder. It contained gall-stones and was the seat of carcinoma which had invaded the liver. The patient died Jan. 14, 1907.

With our present knowledge of these affections it is reasonable to believe that an earlier operation would have been followed by more favorable results, but it will be observed from the history that there was no definite diagnosis of cancer, or, indeed, of cholelithiasis until it was made at the operation, both conditions being present at that time. It is, moreover, not impossible that the carcinoma was the primary disease.

Case 2.—Cholelithiasis; cancer of the gall-bladder; general peritoneal carcinoma.—Mrs. —, was admitted to the University Hospital, Dec. 23, 1906. I had seen her in consultation with Dr. Laws of Paulsboro, N. J., in the previous summer. She then suffered with abdominal discomfort and pain, but she was stout and difficult to examine, and I could find no well-defined evidence of cholelithiasis or other abdominal disease. She was then 52 years of age. Her pregnancies, of which she had had six, were always accompanied by severe pain in the epigastrium, but her labors were normal. With the discovery of stones in the gall-bladder it became reasonable to suppose that the earlier pain during pregnancies may have been due to pressure on the stone-packed gall-bladder by the gravid uterus. With the lapse of time her symptoms became more definite. The pain increased so much in severity as to require hypodermic injections of morphin to relieve it. She had a severe attack of this kind in September. She grew gradually worse and entered the University Hospital, December 23, where Dr. Clark did an exploratory operation December 26. The gall-bladder was found filled with stones and was the seat of carcinoma and there was general peritoneal carcinosis. She died Feb. 11, 1907, after much suffering. Jaundice appeared for the first time, Jan. 21, 1907.

Case 3.—Cholelithiasis; carcinoma of the gall-bladder; carcinomatous invasion of lymphatic glands and liver.[1]—Mrs. M., aged 60, was admitted to the University Hospital on Dr. Clark's service, Jan. 22, 1900. Except for rheumatism, of which she had had several severe attacks, and indigestion more or less for years, she had fair health until her present illness. She has had four children, of whom the youngest is 24 and the oldest 37 years. Mrs. M. has not felt well for several months, suffering with pain in back, but about five weeks before admission she began to have pain also in the right upper quadrant of the abdomen. This persisted, but it was never very severe and often the pain in the back was worse than that in the right side. About three weeks before admission she noticed that her skin was getting yellow, and also that the urine was deep brown in color. A week later she observed a lump on the right side just below the costal margin. For two or three days in the previous week she had had considerable pain on urination. Bowels have been constipated for some years, requiring cathartics. For the past four or five weeks the stools have been very light in color, never before. She has had a great deal of occipital headache during the past winter.

The patient is extremely jaundiced. In the right upper quadrant of the abdomen, extending about four finger-breadths below the costal margin, is a smooth, somewhat tender, tense mass about the size of a large lemon. The urine is very dark red, specific gravity 1.025, acid, contains a trace of albumin, no sugar, a few narrow hyaline and bile-stained granular casts, a few cylindroids, and no red blood-cells, leukocytes or bacteria.

June 24, Dr. Clark made a vertical incision over the gall-bladder, which was found to be enlarged and very tense. When it was opened a quantity of greenish pus squirted out under pressure. The lower portion of the gall-bladder was packed full of small stones, probably several hundred in number. The wall of the gall-bladder was in places about one-fourth inch thick and quite hard. The mucosa was intensely inflamed.

After removal of the stones, many small nodules could be felt in the wall of the gall-bladder surrounding the common duct, and one quite large nodule in the liver. One of these nodules was removed for examination, and macroscopically resembled carcinoma. The posterior half of the gall-bladder was excised; the anterior half, adherent to the liver, was left *in situ*. A large gauze packing was placed down to the base of the gall-bladder and the wound closed with silkworm gut. The packing was all removed by the fifth day. The patient complained bitterly of pain in the back for many days after the operation, and continued to do so longer in less degree. The jaundice cleared up partly, but continued some time longer. The stools became normal in color. The patient gained strength rapidly.

The pathologic diagnosis was carcinoma of the gall-bladder and of the adjacent lymphatic glands.

Delay in operation in cholelithiasis is sometimes followed by other terminations which are scarcely less serious than carcinoma. Among these are suppurative cholangeitis involving more or less the ducts of the liver, whence it may extend into the liver substance or gall-bladder, causing abscess of the liver and empyema of the gall-bladder, and terminating fatally unless relieved by operation.

Another is the establishment of biliary fistulas in different situations in the abdominal cavity, ulcerative perforations of the biliary passages which in 70 cases out of 499 cases, reports of which were collected by Courvoisier, occurred directly into the peritoneum; in 49 there was encapsulated abscess and in 3 retroperitoneal perforation.

Between the biliary passages themselves were 8 cases; this perforation was found directly from the gall-bladder into the substance of the liver (4 cases); into the hepatic duct (2 cases), into a diverticulum of the common duct (1 case) or between the intestinal and hepatic parts of the common duct (1 case). Perforation between the biliary passages and portal vein was found in 5 cases, including the celebrated case of Ignatius Loyola. Openings between the biliary passages and gastro-intestinal canal are not uncommon (137 cases), most frequently between the bile-passages and duodenum, of which there were 83 cases, of which 73 were between the gall-bladder and duodenum, while 10 were between the common duct and duodenum. From the biliary passages into the stomach there were 13 perforations; into the jejunum 1, ileum 1 and colon 39. As might be expected, perforation takes place most frequently from the intestinal part of the duct, the stone first lodging in the diverticulum of Vater. Perforation into the urinary passages was found in 7 cases and into the pleura and lungs in 24 cases. To the last-mentioned, J. E. Graham added ten cases of broncho-biliary fistula. Finally, there may be fistulous communication between the biliary passages and the external integument, Courvoisier having collected 196 cases, in 49 of which the communication was in the right hypochondrium, 36 at the border of the ribs, 49 at the navel or in its vicinity, 17 in the right mesogastrium, 10 in the right iliac region and 6 in the epigastrium. Very interesting in this connection is the fact that out of 169 cases in which the sex was noted, 126 were in women and 43 in men.

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[1] Published by permission of Dr. Clark.

Atrophy of the gall-bladder is not infrequent, and may succeed hydrops vesicae felleae. Many gall-bladders do not hold more than a dram or two of bile, and sometimes there is a mere remnant left in the shape of a fibroid mass; at other times the shrunken bladder closely embraces a single gall-stone of large size. Gall-stones are occasionally found in diverticula of the gall-bladder. Suppurative phlebitis and abscess of the liver may also be due to gall-stones, causing a puriform thrombus in an adjacent branch of the portal vein.

In other instances the gall-stone is so large as to obstruct the bowel when discharged into it, although it may have passed through the natural channel, as evidenced by dilatation of the common duct. For the most part, however, such discharge is by ulceration into the intestinal tract.

It cannot be denied that associated cancers of the gall-bladder may have preceded the cholelithiasis, but there is at least as much reason to believe that they succeeded it. It is just as reasonable to suppose that had operation been performed earlier it would have been successful, and the cancer with its fatal terminations, prevented. The present state of operation on the gall-bladder is such that it is practically as free from danger to life as appendectomy if done early. The medical treatment is at best palliative, and it is not worth while to lose time with it. Nay, more: I believe that in doubtful cases exploratory operation is at times justified, and the more justified because if cholelithiasis is not found some other remedial state may be encountered which would otherwise be undiscovered.

I have said little about symptoms or diagnosis of cholelithiasis, because my object has been to call attention to the importance of early surgical treatment with a view to prevention of carcinoma and other dangerous complications, almost all of which can be averted by such treatment.

1506 Spruce Street.

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# A PHYSIOLOGIC TREATMENT OF CONGESTIVE DYSMENORRHEA AND KINDRED DISORDERS ASSOCIATED WITH THE MENSTRUAL FUNCTION

## THIRD NOTE

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In 1911 I called attention[1] to certain factors which produce physical degeneration and increase the number of women suffering from dysmenorrhea, and suggested a method of treatment. The conclusions stated here and those of former papers as well are based on personal observation of several hundred average women during several thousand menstrual periods; they have been supplemented by experimental work in the physiologic laboratories of Johns Hopkins and Stanford University and in Dr. Kelly's laboratory at Baltimore. These observations and experiments have been almost continuous through a period of twenty-two years.

In order to approach the subject of menstruation with a judicial mind it is necessary to discard preconceived ideas, sex traditions and individual experience — in short, to begin afresh, observing this function precisely in the same attitude of mind that one would observe other periodic functions, such as digestion, defecation, urination and sleep. With this dispassionate view we may be able to accept the definition here given.

Menstruation is, in fact, a periodic flow from the uterus of woman which occurs at fairly definite intervals in the same person. This interval is counted from the first day of the onset of the flow to the first day of the next onset. The duration of the flow, which varies in different persons, should be not more than two or three days. When normal, this function is not attended with pain or disability of any kind.

The functional dysmenorrhea so commonly observed is, in the larger number of cases, congestive in type, and is produced by: (1) the upright position (Moscati), (2) alteration of the normal type of respiration by disuse of the diaphragm and of the abdominal muscles; (3) the lack of general muscular development; (4) inactivity during the menstrual period; (5) psychic influences. In order to follow the relation between these causes of congestive dysmenorrhea and the physiologic treatment about to be suggested, it is necessary to have clearly in mind certain anatomic and physiologic facts concerning circulation.

The circulatory apparatus in human beings is not materially different from that in the higher mammals which go on all fours and thus carry the body in the horizontal instead of the upright position. The vena cava is without valves; and therefore, in the upright posture, a great column of blood must be sent back to the heart against the force of gravity. The chief factor in the return of the blood to the heart is the negative pressure in the thorax. "At each inspiration blood is 'sucked' from the extrathoracic into the intrathoracic veins."[2] The thoracic portion of the vena cava inferior which is under less pressure than the abdominal portion has this difference increased by the descent of the diaphragm and the contraction of the abdominal muscles.

Whatever part of the body is functioning at any particular time has a larger supply of blood. Thus the uterus, during the menstrual period, has its blood-supply augmented and at the same time the general blood-pressure is lowered[3] and the local blood-pressure raised. By the menstrual hemorrhage the excessive local blood-pressure is relieved. This blood, lost in the menstrual flow, is the same kind of blood as that used for mental or physical activity and represents, therefore, potential energy. In the intermenstrual period more energy of the person must be used to replace this loss. Normally, according to Cullen,[4] Williams,[5] Moericke and others, the epithelial lining of the uterus is not shed.

This periodic physiologic congestion of the uterus in woman, which occurs about the time of menstruation,[3] is frequently so excessive that it produces congestive dysmenorrhea. The upright position, lax abdominal muscles, costal instead of diaphragmatic breathing and constriction of the body by clothing which interferes with the use of the abdominal muscles and diaphragm—all combine to develop and promote this excessive pelvic congestion. As a result, there is pain at the menstrual period, prolonged hemorrhage and undue loss of blood.

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[1] Mosher, Clelia Duel: Functional Periodicity in Women and Some of the Modifying Factors (Second Note), California State Jour. Med., January and February, 1911; reprinted in full in Woman's Medical Journal, Cincinnati, April, 1911; abstr., The Journal A. M. A., April 29, 1911, p. 1295; Sargent Normal School Association Proceedings, 1911, p. 14; American Physical Education Review, November, 1911, p. 493.

[2] Howell, W. H.: Text-Book of Physiology, p. 588.

[3] Mosher, C. D.: Normal Menstruation and Some of the Factors Modifying It (preliminary note), Bull. Johns Hopkins Hosp., 1901, xii, 178.

[4] Cullen, T. S.: Changes of the Endometrium at the Menstrual Period in "Cancer of the Uterus," pp. 25-26.

[5] Williams, J. W.: Observations on the Mucosa during Menstruation (also quotes views of Moericke and others) Obstetrics, p. 75.

In a large number of cases I have corrected these conditions by the following physiologic method: All tight clothing having been removed, the woman is placed on her back, on a level surface, in the horizontal position. The knees are flexed and the arms are placed at the sides to secure relaxation of the abdominal muscles. One hand is allowed to rest on the abdominal wall without exerting any pressure, to serve as an indicator of the amount of movement. The woman is then directed to see how high she can raise the hand by lifting the abdominal wall; then to see how far the hand will be lowered *by the voluntary contraction of the* abdominal muscles, the importance of this contraction being especially emphasized. This exercise is repeated ten times, night and morning, in a well-ventilated room, preferably while she is still in bed in her night-clothing. She is cautioned to avoid jerky movements and to strive for a smooth, rhythmical raising and lowering of the abdominal wall.

In many cases and particularly in those who most need the exercise, the voluntary contraction of the muscles will at first be very slight. Occasionally, the woman will complain of dizziness, and the exercise should be discontinued for that time; but she will be able at subsequent trials to increase the number of repetitions until she reaches the specified number. In a few cases some discomfort or slight pain has been experienced with the contraction of the abdominal muscles; nevertheless, if the exercise is gently continued, these symptoms are relieved and usually disappear entirely.

The result of the treatment has been that the pain has been lessened in many cases, and wholly removed in a large number. In women who are habitually free from pain at the menstrual period, but who, on account of some unfavorable condition, have suffered an attack, the pain has been stopped at its onset by these exercises. The exercises have been taught by the women under my care to others with the same satisfactory results as, for instance, in the following cases:

Patient A was a sister of woman under my observation. Symptoms were too abundant flow of too long duration (nine to fifteen days), headache, backache, cramps during the entire period; obliged to go to bed to control the flow. This woman has practiced these exercises daily for six months with the result that the headaches have almost disappeared, the backache and cramps are much less severe and she is able to be about on her feet instead of going to bed.

Patient B was the mother of woman under my observation. Menstruation was normal and without pain, but the patient has always suffered from severe constipation, which medical and osteopathic treatment has failed to relieve. Since she has been taught these exercises by her daughter the constipation has disappeared.

Constipation, which is so frequently a factor in producing mechanical dysmenorrhea, may be corrected in a certain number of cases by the massage of the intestines, which is brought about by the contraction of the abdominal muscles and the descent of the diaphragm in these exercises. The correction of constipation in cases in which it exists is also a factor in the improvement as well as the correction of the excessive uterine congestion. A general improved condition of the organism is, of course, induced by proper elimination.

The effect of such exercises in limiting the duration and amount of the flow is shown in such an instance as Case 180 T, in which the patient menstruated regularly every twenty-eight days, the entire period lasting eight days and the main flow four days. Usually much abdominal pain was felt on the first day, though sometimes—as three months ago—she had no pain. Though she did not go to bed she had to rest the whole first day. She is of a temperament that worries about everything. She discovered for herself that walking at the menstrual period relieved the pain; after taking regular gymnastics and these exercises for several months she had gained in weight, there was no pain at the menstrual period and its duration was reduced to five days. She reported that she went to two dancing parties on successive *nights during a menstrual period without* suffering any undesirable results.

Patient V 53 had no pain, but the period lasted eight to nine days, the main flow only three days. After she has practiced these exercises daily the duration is reduced to five and the main flow to two days, and she is in much better general condition than formerly. Many women who have taken these exercises regularly, report periods shortened and some that the amount of the flow is less. In some cases it has been necessary to continue the exercises for some time before any marked change in length and amount of flow has been accomplished.

Two patients have corrected the symptoms of nausea and vomiting during menstruation by these special exercises and the morning sickness, which often accompanies pregnancy, has been completely corrected by Patient 51 M. She was pregnant about three and a half months and was in the habit of waking about 4 o'clock in the morning with severe nausea and retching. By practicing these exercises she obtained immediate relief and repeating them several times a day she has stopped not only these attacks, but also relieved the sense of weight and of pressure in the legs. These exercises have been continued through the later months of pregnancy for this latter symptom, and she has found them helpful in producing sleep.

In simple and uncomplicated cases it should be possible to control hemorrhage at the menopause as in Patient C (mother of woman under my observation), whose symptoms were severe headache, excessive flow and constipation. She takes the exercises twice daily during the month with the result that her headaches have almost disappeared, the flow is already reduced to reasonable amount and the constipation is definitely less.

It is well known that many women have pimples at or near the time of menstruation. Careful observation has shown that they sometimes come before, sometimes during and sometimes after the period. This variation corresponds to the drop in the sexual blood-pressure, a rhythm which bears the same variable relation to the menstrual flow. May not the appearance of these pimples be due to the drafting off of too much blood from the general circulation to the pelvis, thus leaving the digestion a little less perfect? The skin may suffer as well from depleted circulation — a woman is often noticeably paler at the menstrual period. The unfavorable condition may be further increased by the omission to bathe, a habit which is traditional among women. It is not strange that the organism should work less perfectly when all its activities are so sharply altered as has become habitual among a large number of women at the menstrual period.

The desirability of more activity during menstruation is illustrated by Case D (not under my observation). A robust young woman suffered with too abundant flow which came every three weeks and then every two weeks. She was in the habit of always resting at the menstrual period. All medical care failed to relieve this too abundant and too frequent hemorrhage. She took an office position which required her to be indoors all the week except Saturday afternoon. In order to get some outdoor life she made it a practice to take a long walk of from 6 to 10 miles on her half holiday. She did this every week even if menstruation came at the time. Her periods promptly improved. She is now perfectly well with a period coming every twenty-eight days and with a reasonable flow.

While ordinary activity during the menstrual period is desirable, a word of warning is needed in this relation. Although some women may be able to carry on all their usual physical work, it would be a dangerous experiment to permit pupils in the secondary schools especially or even women in college to continue all their regular gymnastics and athletics. Many of the more mature women may be able to go on with safety, but it is impossible to draw the line between those who are and those who are not able to do violent exercise at this time. The individual judgment must be sufficiently developed after proper training in physiology and hygiene to assume the responsibility for the degree of activity desirable during the menstrual period.

Psychic Influences: The first step in the physical regeneration of women is to alter their habits of mind in regard to bodily functions. They now accept periodic disability as inevitable. The terms "sick time," "unwell," etc., for the function of menstruation and the mental acceptance of disability is so firmly fixed in traditional thinking that it is difficult to get a woman even to try to be perfectly well, however simple the method of relief offered to her. In answer to any suggestion I am met with such statements as: "I have so much less trouble than my friends that it does not seem worth bothering about"; or, "Everyone has more or less trouble," or "I can't remember to do the exercises"; the implication always being that such trouble is inevitable to woman. One young woman under observation gave this account of her experience:

> I had never had a period without terrible pain since I was 13 years old. I always went to bed, at least for the first day. My mother has taken me to every kind of a doctor, even osteopath and chiropath, and none of them did me any good. I didn't believe in your exercises, but after talking with you I did them for two weeks twice a day, and two or three days before my period, for three times a day. When I felt that it was coming on I did two hours of my class-work and telephoned my mother to have hot-water bottles and my bed ready when I should come home. I was so sure that I would have the customary pain that I lay down and waited for it to begin. But it did not begin. Then I got up and went out to gather some greens for decorations for a dance which was to be given that night. I fell over a fence and then I was sure I would have a terrible time. But as the pain still did not come on I stayed around till dinner-time and afterward dressed and went to the party. On the second day I was on my feet all day and did much heavy lifting so that I was very tired and felt a sense of weight (in the pelvis) but I had no pain, cramps or any bad effects.

The lassitude, headache and nervous irritability which it has been customary to associate with the menstrual function, may readily be explained by (1) the lowered general blood-pressure and the excessive congestion of the uterus which causes the lack of a proper blood-supply in other organs, and (2) an inactivity which brings about both a lessened oxygen intake and a decreased carbon dioxid elimination, thus favoring the development of these undesirable symptoms. To these factors must be added the normal stimulation of the sex centers at this time, which may express itself in nervous irritability and depression. The traditional treatment of rest in bed, keeping the patient very warm, directing the attention solely to the sex zone of the body, and the accepted theory that it is an inevitable "illness" while at the same time the mind is without wholesome occupation, produces a morbid attitude and favors the development and exaggeration of whatever symptoms there may be.

From these cases and their response to these regular exercises it becomes evident that the definition of menstruation should be restated more accurately: menstruation is a hemorrhage from the uterus of a woman which occurs at regular intervals. It is Nature's effort to relieve the undue congestion of the uterus which has been induced (1) by the upright position and (2) by interference with the normal physiologic return of the blood to the heart which should be accomplished by the action of the diaphragm and the abdominal muscles. The undue congestion is most frequently the cause of pain at the beginning of the menstrual period, and this pain disappears as soon as the flow is well established.

Additional evidence that the menstrual pain is caused by this excessive congestion is furnished by Dr. Esther Rosencrantz of San Francisco. In a recent conversation she stated that she frequently prescribed to her patients two hot tub baths a day to relieve the pain at the onset of menstruation. The hot bathing would, of course, divert the blood from the overcongested uterus to the skin.

The periodic raising of the local blood-pressure and the lowering of the general blood-pressure has been grossly exaggerated in the woman by her physical inactivity and by her constricting dress and unhealthful habits. The hemorrhage is brought about probably by Nature's usual method—diapedesis[4]—and there is no shedding of the epithelium in preparation for the reception of the fertilized ovum as was formerly supposed. Does not Loeb's work,[6] showing the sensitizing of the uterine mucosa by the secretion of the corpus luteum so that it reacts to the normal stimulus of the fertilized ovum, do away with any theoretical necessity for a new surface?

I believe that menstruation represents, not a supplemental wave of nutrition (Jacobi[7]), but rather a waste of potential energy in the form of blood which might be used in productive work when not required for the development of the embryo. No physiologic purpose is served by the excessive congestion of the uterus and adnexa so frequently found in women. No harm can possibly come from bringing about a better circulation of the blood through the generative organs by the physiologic method here suggested. The healthy functioning of any organ is dependent on perfect circulation which brings oxygen and nutritive material to its cells and carries away its waste products, not on being overfilled by a sluggish blood-flow. In this overcongestion, often unduly prolonged, have we not a condition favoring the development of pathologic conditions?

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[6] Loeb, Leo: Experimental Production of the Maternal Placenta and Function of the Corpus Luteum, THE JOURNAL A. M. A., Oct. 30, 1909, p. 1471. See also editorial, Function of Corpus Luteum, THE JOURNAL A. M. A., Feb. 25, 1911, p. 59.

[7] Jacobi, Mary Putnam: The Question of Rest for Women p. 168.

It is generally believed that primitive and savage women have a very scanty menstrual flow. That a flow of short duration and limited quantity is not abnormal even among civilized women is shown in the following case.

The menstrual history of Patient 47 M began at 16, and was well established at 18; regular every twenty-eight days; flows scanty, duration three days, first day being slight colored flow, second day a little flow of decided color, third day lessened color; no pain. There was complete amenorrhea during the patient's first year in college; prompt return of normal periods during vacation; on reentering college the second year, amenorrhea again. At the end of this year she was advised by the college physician not to continue her course because of the amenorrhea. Soon after leaving college she was married and has borne eight vigorous, perfect children, and has normal sexual instinct.

Women have been taught to fear every variation in the menstrual function, but they are often quite ignorant of the origin of this unnecessary terror of even slight variations. This has come possibly from the fact that amenorrhea may be a symptom of pregnancy. Is it not probable that the amenorrhea induced by change of climate is an indication of increased rather than diminished vigor, when it is not associated with undesirable symptoms? Excessive work in college, usually social as well as mental, occasionally gives rise to a temporary amenorrhea—a mere colorless show appearing at the regular period. I have pointed out to such young women the relation between the extra strain and the absence of the usual hemorrhage—they had nothing to waste. If they were not anemic or otherwise in poor condition, the assurance that the flow would return when they ceased to work so hard would set their minds at rest. If they had been encouraged to worry about it, psychic influences might have induced more serious symptoms. Again, the menstrual period occasionally is skipped once or twice; it returns, no harm has been done, apparently — any more than in Patient 47 M already quoted, in which the college career was cut short unnecessarily, through fear, although the young woman was splendidly well in every other particular.

There is, however, some danger of confusing cases of amenorrhea, lessened flow and colorless flow which are due to lowered vitality, to anemia or to other serious disturbances, with the normal shortening of flow and lessening of amount in vigorous women produced by the more perfect circulation induced by the exercises already described, and it is obvious that careful discrimination must be made.

For twenty years I have been asking myself the question: "Why are some weak women free from menstrual disability while some strong ones suffer much pain?" The answer has been given to me every time I suggested these abdominal exercises to a woman who had never had any pain. She said: "I always breathe this way." In other words, normal women who have the diaphragmatic type of respiration have no menstrual pain. This does not prevent them, however, from having too long periods nor from undue loss of blood. In order to change these conditions the abdominal muscles must be exercised definitely and regularly.

Constrictive dress and inactivity interfere more with the abdominal muscles than with the diaphragm. The degree to which they induce menstrual pain may be suggested by a comparison of observations made in 1893-6 with others made in 1910-14. In 1893-6 a larger proportion of the women had pain and discomfort of severe type and of relatively long duration. In 1910-14 the larger number of cases have no disability and such pain as the remainder have is rarely severe and of short duration. In 1893-6 the average width of skirts worn by 98 young women was 13.5 feet—the widest 15 and the narrowest 9 feet. The weight of the outside skirt alone was often nearly as much as the weight of the entire clothing worn by a modern girl. At that period, too, every woman must have a wasp-like waist and several under petticoats were also carried from the waist. It is certainly not difficult to understand why so many women had menstrual pain at that period.

The modern girl with her large normal waist may in some cases have her narrow skirt criticized on the ground of modesty, but from the point of view of health we should rejoice in her freedom. The only other factor which is tolerably constant in the two groups compared above is that of exercise. In some measure the greater activity of modern girls, made possible by lighter and looser clothing, has undoubtedly assisted, when the skirt is not narrow enough to be a limitation to lessen the menstrual hemorrhage, its duration and the associated pain.

Under normal conditions there should be no more women suffering with disorders of the generative organs than with disturbances of the digestion or respiration or heart. But it is still very difficult for us to lend an open mind to any theory which opposes the accepted one of inevitable menstrual disability among women. An English writer,[8] who quotes my experiments on women, ignores the corresponding set of experiments on men, thus deducing quite false conclusions. He sets aside the statements that the blood-pressure rhythm cannot be a menstrual rhythm since it is found in men as well as women; and that the coincident functional disturbances in other organs are probably due to the lowered general blood-pressure.[3] Mr. Havelock Ellis disposes of the subject as follows:

> Suffering occurring at the menstrual period, whether directly or indirectly due to the menstrual process, is quite properly described as menstrual suffering.

In regard to menstruation we have too long confused cause and effect: the menstrual hemorrhage is not the cause of the blood-pressure rhythm, but an exaggerated result of interference with normal circulation.

The economic loss to the individual woman who has to earn her living and is yet periodically incapacitated more or less is very great; and even to the married woman the loss in time and working capacity is considerable. But these losses are relatively small as compared with the inability of the periodically depleted woman, to be a vigorous mother to the race.

The first of these remedies is the removal of the factors which are producing the disability—constrictive clothing and the inactivity of the muscles of the abdomen and the diaphragm. But more important even than this is an alteration of the morbid attitude of women themselves toward this function, and almost

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8. Ellis, Havelock: Man and Woman, 1913, pp. 287, 291, 298.

equally essential is a fundamental change in the habit of mind on our part as physicians; for do we not tend to translate too much the whole of a woman's life into terms of menstruation? If every young girl was taught that menstruation is not normally a "bad time" and that pain or incapacity at that period is as discreditable and unnecessary as bad breath due to decaying teeth, we might almost look for a revolution in the physical life of women.

At present all the evidence points to the menstrual hemorrhage as a secondary matter more or less fixed by the upright position. It is unnecessary and undesirable that it should be of more than brief duration or of more than slight amount. Pain and discomfort, where no organic lesion exists, are readily controllable by the physiologic regulation of the circulation from the abdomen and pelvis back to the heart by the restoration of the tone and action of the abdominal muscles and diaphragm. The coincident functional disturbances in other organs are a result, directly or indirectly, of the undue congestion in the pelvis which has drafted off too much blood from the general circulation leaving other parts, as the digestive area or skin, too depleted to function properly. The congestive headaches, whether they occur at the menstrual or the intermenstrual period, are relieved by the equalizing of the circulation by these exercises.

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# A CASE OF SO-CALLED "RENAL DIABETES," POSSIBLY TRAUMATIC IN ORIGIN*

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The relations between the kidney and sugar excretion form interesting chapters in the study of diabetes and of less well-known glycosurias. [illegible] ception that the kidney is practically [illegible] has been disputed. In 1897 Lépine[1] reported the case of a woman dying in coma, whose blood contained 1.6 per cent. sugar and whose kidneys were enormous and showed a high grade of interstitial inflammation. Richter,[2] in 1900, in a critical review of the relation between kidney and glycosuria, concluded that renal diseases may have a favorable effect on glycosuria, and that in kidney diseases the permeability of the renal filter to sugar seemed diminished. Von Noorden[3] also considers that a diseased kidney shows a diminished permeability to sugar.

Weiland[4] has shown that in cases of acute nephritis the blood-sugar level is low, and in chronic interstitial nephritis it reaches the upper limits of normal, while in outspoken uremia there is usually hyperglycemia. He, too, thinks that the development of albuminuria in a diabetic usually has the effect of diminishing the excretion of sugar, on account of diminished permeability of the renal filter. Likewise the low excretion of sugar seen in diabetic coma is frequently associated with a very high increase in blood-sugar, an interrelation which strongly suggests that the low excretion is due to the inability of the kidney to excrete accumulated sugar. It must be assumed, then, that a relation may exist between glycosuria and the kidney, independent of a true metabolic disturbance. The name "renal diabetes" would imply a disorder involving the kidney, and Lüthje[5] cites a case-report to show that glycosuria developed after the appearance of a kidney lesion.

Richter[6] and subsequent workers do not consider active renal disease necessary for the conception of this type of glycosuria, although, according to the theories advanced by Lépine[7] and by Frank,[8] the absence of resorption of sugar by the kidney canaliculae may account for the anomaly. Renal diabetes is "glycosuria without hyperglycemia," analogous in many ways to the toxic glycosuria produced by chromium, uranium or phloridzin (Frank). In fact, Lépine[7] and recently Garrod[9] have proposed that the term "renal diabetes" be dropped and that the phrase "glycosuria without hyperglycemia" be employed in its stead.

Clinically, the condition as reported in the literature is an anomaly, differentiated from true diabetes mellitus by (*a*) the excretion of sugar being entirely or practically entirely independent of carbohydrate intake; (*b*) the blood-sugar being normal or decreased, and (*c*) the clinical course. Early cases of diabetes may not show an interdependence of diet and sugar excretion, so that from a diagnostic point of view the greatest emphasis is to be laid on the blood-sugar determinations. Such determinations have always been considered unsatisfactory, and reports from different clinics or different laboratories have not been comparable because of different technics employed. Therefore, the third element, the clinical course, must also be properly weighed.

In the analysis of cases of so-called renal diabetes in the literature one is struck by the many temporary derangements classified under this head, which to us seems like an unjustifiable neglect of the clinical possibilities. Since so little is known of the early course of orthodox diabetes mellitus, it would seem necessary to prove that a given condition is not true diabetes before labeling it with the name of a distinct entity of unknown etiology and pathology.

Therefore, unless one is willing to accept the term renal diabetes to mean merely a *state* of glycosuria without hyperglycemia, many of the cases described in the literature cannot be considered to prove the existence of a separate disease. Undoubted cases which have conformed to the standards just laid down have been reported. Bönniger's[10] patient was under observation three-quarters of a year, and had had glycosuria for three years. There were none of the usual symptoms of diabetes; the excretion of sugar was practically constant (from 2 to 25 gm.), and was independent of carbohydrate intake; the blood-sugar was normal.

Lüthje's[5] patient was under observation for six months, and had the other characteristics of the condition. Only one of Weiland's[4] three patients was watched long enough to rule out the subsequent development of a true diabetes, although he precludes this possibility on theoretical grounds. Garrod[9] has followed two cases for six and two years, respectively. Buber and Kolisch[11] watched their patient for six months, but the constant high sugar excretion (5 per cent.) makes it doubtful if this case should be included.

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* From the Department of Clinical Research, Michael Reese Hospital.

1. Lépine: Rev. de méd., 1897, xvii, 832.
2. Richter: Deutsch. Arch. f. klin. Med., 1900, xli, 160.
3. Von Noorden: Metabolism and Practical Medicine, 1907, iii, 529.
4. Weiland: Deutsch. Arch. f. klin. Med., 1911, cii, 167.
5. Lüthje: München. med. Wchnschr., 1901, xlviii, 1471.
6. Richter: Deutsch. med. Wchnschr., 1889, xxv, 840.
7. Lépine: Semaine méd., 1913, xxxiii, 457.
8. Frank: Arch. f. exper. Path. u. Pharmakol., 1913, lxxii, 387.
9. Garrod: Brit. Med. Jour., 1913, ii, 850.
10. Bönniger: Deutsch. med. Wchnschr., 1908, xxxiv, 780.
11. Buber and Kolisch: Wien. klin. Wchnschr., 1897, x, 553.

Recently Salomon[12] has described from von Noorden's clinic thirteen cases which fit into the class under discussion. He calls them "diabetes innocens" rather than renal diabetes, and lays great stress on the clinical course. Although some of his patients did show a somewhat increased amount of blood-sugar, he does not consider that this fact makes them true diabetics. The absence of an alimentary hyperglycemia is of special importance in including glycosurias among the innocent group. Call these cases what one will, Salomon has surely shown that there exists a group of glycosurias even in youth which does not progress to orthodox diabetes mellitus.

The observations recently made by Novak, Porges and Strissower[13] and by Frank,[8] that the transitory glycosuria seen in pregnant women belongs to the type of glycosurias without hyperglycemia, suggests at least that the condition is not rare, and that the more extensively blood-sugar estimations are made, the more frequently will the condition be observed. Tachau,[14] Weiland,[4] Frank[8] and others all report cases without symptoms of diabetes, with glycosuria independent of intake, and with normal or reduced blood-sugar, but in none of these was the period of observation long enough to exclude them definitely from the possibility of being unusual onsets of true diabetes. Any studies, however, which throw light on the early clinical course of diabetes and assist in differentiating non-diabetic glycosurias from true diabetes, are at least of empiric interest, and the review of the literature justifies the assumption that a glycosuria without hyperglycemia exists and is not a true diabetes.

Since knowledge of the condition under discussion is so far from being absolute, it seems wise to report in complete detail the interesting case which furnishes the basis for this article.

### REPORT OF CASE

*History.*—The patient was 23 years old, a Jewish man. Nov. 6, 1912, he was refused life insurance because of "diabetes." From this date to Dec. 21, 1912, he was under the care of Dr. Arthur Beifeld, and was being gradually placed under an increasing restriction of carbohydrates. December 21 he was referred to us. At that time he had no complaints whatever, except at the physicians who insisted on finding sugar when he felt so well. No increased thirst, no increased appetite and no polyuria were present. During the period of restricted diet he developed acetonuria and lost weight.

The patient, five years before, had had possibly a mild typhoid fever. He denied lues. Always a good liver, he had eaten about what he wanted and usually consumed plenty of rich carbohydrate food. He indulged in alcoholic drinks very moderately, but smoked cigarettes freely. He was of a nervous, rather excitable temperament.

About one year before, while he was out sleighing in a party, the vehicle was struck by a street-car and the patient was thrown to the street, landing on his head. He was unconscious for a few minutes, but soon recovered, and was able to drive an automobile. He was seen at this time by one of us (A. H. B.), who found nothing indicating a skull fracture. For from three to five days he had intense headache, which then left him without the slightest trace of ill result. A urinalysis made before the accident and one after it showed no sugar.

Most members of the family are of the "high-strung" type, hustling, active mentally and physically. There is no diabetes in the family.

*Physical Examination.*—The patient is a well-built, well-nourished young man in apparent perfect health. The pupils are equal and react to light and accommodation. The eye-grounds (Dr. Harry Gradle) are negative. Mucous membranes are of good color. Tongue is clean, teeth good, pharynx negative. Ears and nose negative. No palpable glands in the neck or elsewhere in the body. The thyroid is not enlarged.

Chest: Heart and lungs are negative.

Abdomen: This is held everywhere rather rigidly, but when attention is distracted it relaxes. There is no tenderness, and no masses are palpable. Spleen, liver and kidneys are not palpable.

Genitalia are negative. There is no edema of extremities. Careful examination of reflexes shows them all equally active and brisk. No Babinski.

Pulse is 76 to the minute, regular and small; vessel-wall is not palpable. Blood-pressure (systolic) in right brachial artery is 110 mm., in left 105.

Temperature is 98.4, respirations 20.

Blood Examination: Red blood-cells, 5,980,000; white blood-cells, 9,450; hemoglobin, 95 per cent. (Sahli corrected). Differential count—Wright stain: polymorphonuclears, 71; small mononuclears, 19; large mononuclears, 8; eosinophils, 1; basophils, 1 per cent.

The Wassermann reaction is negative.

Feces are small, well-formed, acid and brown; they show no mucus, pus or blood. Microscopically, digested food particles are revealed, with no excess of undigested muscle fibers or of fat.

TABLE 1.—EXAMINATIONS OF PATIENT ON CARBOHYDRATE-FREE DIET (SIX PIECES OF BREAD)*

| Date | Amt. c.c. | Specific Gravity | Reaction | Sugar, Per Cent. | Sugar, Gm. | Albumin | Acetone | Ferric Chlorid | Ammonium Gm. |
|---|---|---|---|---|---|---|---|---|---|
| 12/21/12 | † | 1.025 | Alk. | ‡ | ‡ | 0 | 0 | 0 | ..... |
| 12/24/12 | 1,500 | 1.016 | Alk. | 0.55 | 8.25 | 0 | ± | 0 | ..... |
| 12/30/12 | 1,500 | 1.015 | Acid | 0.23 | 3.45 | 0 | ± | 0 | ..... |
| 1/ 7/13 | 2,100 | 1.017 | Acid | 0.39 | 8.19 | 0 | ± | 0 | 0.321 |
| 1/11/13 | 3,000 | 1.018 | Alk. | ± | ? | 0 | + | ± | 0.35 |

* In this table ± means trace, + positive, and 0 negative.

† Plain specimen.

‡ Sugar was not measured as only a plain specimen was examined.

A Roentgen examination of the skull showed no evidence of fracture and no signs of pathologic changes in the sella turcica.

The first twenty-four-hour urine examination was made by us Dec. 24, 1912, at which time the patient was on a restricted diet, containing from four to six pieces of rye bread a day. This and the other office examinations are shown in Table 1.

The reducing body was dextrorotatory, was fermented and gave characteristic crystals with phenylhydrazin.

Jan. 12, 1913, the patient was admitted to the Michael Reese Hospital for further study. During the stay in the hospital he had no *symptoms* except when under complete restriction of carbohydrate, at which time he complained of headache and was inclined to be irritable.

The complete urinary analyses, with corresponding diets, are given in Table 2.

*Summary of Findings.*—1. A glycosuria practically independent of carbohydrate intake. In fact, the largest excretion of sugar noted is on February 14, after five days of strict carbohydrate-free diet.

2. Neither simple restriction of carbohydrate intake nor the use of "vegetable days" or "oat days" made the patient aglycosuric, except once, for four days.

3. Restriction of protein intake did not reduce the glycosuria.

4. Acetonuria and clinical signs of acid intoxication developed quickly on the withdrawal of carbohydrate from the diet.

*Further History.*—Feb. 17, 1913, the patient went to Europe, where he consulted von Noorden. He was under observation at von Noorden's clinic from March 11 to March 31, during which time the observations made by us were repeated and verified. In addition, two blood-sugar determinations were made—one with the patient on a strict diet, and one while he was taking plenty of starch—and in both cases "normal values were found." In a personal communication von Noorden says, "According to theoretical considerations, the case must be classified under the so-called renal diabetes."

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[12] Salomon: Deutsch. med. Wchnschr., 1914, xl, 217.

[13] Novak, Porges and Strissower: Deutsch. med. Wchnschr., 1912, xxxviii, 1868.

[14] Tachau: Deutsch. Arch. f. klin. Med., 1911, civ, 448.

We have been able to follow the patient quite carefully since his return from Europe. We did not advise a strict carbohydrate-free diet, but with some misgivings we allowed him to eat about what he pleased—restricting only the use of sugar. There were certain personal reasons why the patient was anxious to know if the disease could be true diabetes mellitus, and he insisted on using means to bring out any latent evidences of diabetes. Accordingly, he led his usual life, and ate what he pleased. July 15, 1913, he was in excellent physical condition, weighing 160 pounds, felt strong and healthy and had absolutely no symptoms of diabetes, or any complaint whatever. He felt so well then that he even refused to collect a twenty-four-hour specimen, but did give us a plain specimen voided at 11 a. m. This contained 0.8 per cent. sugar, no acetone and no albumin.

At about this time we proposed a lumbar puncture. We reasoned that the whole condition *may* have been due to the head injury in 1911, and might therefore be the result of hypophyseal hyperactivity. While it is true that the work of Cushing and his coworkers[15] indicates that glycosuria due to the hypophysis would be associated with hyperglycemia, nevertheless the interesting practical result of the lumbar puncture in Herrick's[16] case of diabetes insipidus seemed to warrant the procedure from a practical as well as a theoretical point of view. Accordingly, on July 30 the lumbar puncture was performed and the fluid analyzed by Dr. Dean Lewis. From 15 to 20 c.c. of a clear fluid under decided pressure were withdrawn. The blood-pressure tracings made by Dr. Lewis gave no sign of a pressure-raising substance.

TABLE 2.—COMPLETE URINARY ANALYSES, WITH CORRESPONDING DIETS*

| Diet | Date, 1913 | Amount, c.c. | Specific Gravity | Reaction | Albumin | Sugar, Per Cent. | Sugar, gm. | Acetone | Ferric Chlorid | Ammonium, gm. | Nitrogen, gm. | Urea, gm. | Casts | Weight, Lbs. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carbohydrate-free | 1/12 | † | 1.025 | Acid | 0 | + | + | ++ | ± | .... | ..... | .. | 0 | ... |
| Carbohydrate-free | 1/13 | † | 1.025 | Acid | 0 | + | + | + | ± | .... | ..... | .. | 0 | 151 |
| Vegetables | 1/14 | 1,920 | 1.020 | Alk. | 0 | ± | + | + | 0 | .... | ..... | .. | 0 | 149 |
| Oat gruel, 250 gm., and vegetables | 1/15 | 720 | 1.030 | .... | 0 | 0 | 0 | ++ | + | 0.25 | ..... | .. | 0 | ... |
| Same | 1/16 | 1,170 | 1.030 | .... | 0 | 0 | 0 | ++ | ± | 0.28 | ..... | 22 | 0 | ... |
| Same | 1/17 | 2,220 | 1.012 | .... | 0 | 0 | 0 | + | ± | 0.11 | ..... | 24 | 0 | 149 |
| Vegetables, oat gruel, 100 gm., meat, eggs | 1/18 | 2,430 | 1.015 | .... | 0 | 0 | 0 | ++ | ± | 0.13 | ..... | 46 | 0 | ... |
| Same | 1/19 | 1,980 | 1.016 | Alk. | 0 | 0.119 | 2.36 | ++ | + | 0.18 | ..... | .. | 0 | ... |
| Carbohydrate-free | 1/20 | 2,520 | 1.017 | Alk. | 0 | 0.15 | 3.78 | ++ | ± | 0.10 | ..... | 30 | 0 | ... |
| Bread, 50 gm. | 1/21 | 2,520 | 1.021 | Alk. | 0 | 0.2 | 5.25 | ++ | ± | 0.12 | ..... | 30 | 0 | ... |
| Bread, 75 gm. | 1/22 | 2,520 | 1.022 | Alk. | 0 | 0.26 | 6.5 | + | 0 | 0.55 | ..... | .. | 0 | ... |
| Bread, 100 gm. | 1/23 | 1,560 | 1.025 | Alk. | 0 | 0.14 | 2.18 | ± | 0 | 0.99 | ..... | 37 | 0 | 149½ |
| Bread, 125 gm. | 1/24 | 1,560 | 1.024 | Alk. | 0 | 0.25 | 3.9 | ± | 0 | 0.57 | ..... | 31 | 0 | ... |
| Bread, 150 gm. | 1/25 | 1,590 | 1.020 | Alk. | ± | 0.19 | 3.1 | ± | 0 | 0.39 | ..... | 22 | 0 | ... |
| Bread, 150 gm. potato, 40 gm. | 1/26 | 1,780 | 1.020 | Alk. | ± | 0.4 | 2.83 | ± | 0 | 0.76 | ..... | 25 | 0 | ... |
| Bread and potato, 250 gm. | 1/27 | 1,440 | 1.025 | Alk. | ± | 0.17 | 2.43 | ± | 0 | 0.34 | ..... | 23 | 0 | ... |
| No meat; carbohydrate, 200 gm.; 4 to 6 eggs. | 1/28 | 1,230 | 1.030 | Alk. | ± | 0.26 | 3.2 | ± | 0 | 0.61 | ..... | 30 | 0 | ... |
| Same | 1/29 | 1,560 | 1.022 | Alk. | ± | 0.17 | 2.65 | 0 | 0 | 0.7 | 9.59 | 28 | 0 | ... |
| Same | 1/30 | 1,560 | 1.015 | ‡ | ± | 0.29 | 4.5 | 0 | 0 | 0.64 | 8.51 | 23 | 0 | ... |
| Same | 1/31 | 1,020 | 1.021 | Acid | ± | 0.31 | 3.18 | 0 | 0 | 0.7 | 8.99 | 18 | 0 | ... |
| Meat once a day, bread, 100 gm | 2/ 1 | 1,020 | 1.021 | Acid | ± | 0.26 | 2.68 | ± | 0 | 0.97 | 6.57 | 22 | 0 | ... |
| Bread, 50 gm. | 2/ 2 | 1,380 | 1.018 | Alk. | ± | 0.25 | 3.45 | ± | 0 | 0.92 | 6.95 | 26 | 0 | ... |
| Carbohydrate-free | 2/ 3 | 2,220 | 1.017 | Alk. | ± | 0.26 | 5.75 | ± | 0 | 0.9 | 11.5 | 28 | 0 | ... |
| Carbohydrate-free | 2/ 4 | 1,410 | 1.024 | Alk. | + | 0.185 | 2.61 | 0 | 0 | 0.48 | ..... | 31 | 0 | ... |
| Carbohydrate-free | 2/ 5 | 1,860 | 1.022 | Alk. | 0 | 0.2 | 3.76 | 0 | 0 | 0.54 | 9.37 | 33 | 0 | ... |
| Vegetables | 2/ 6 | 1,890 | 1.026 | Alk. | 0 | 0.18 | 3.4 | 0 | 0 | 0.45 | ..... | 34 | 0 | ... |
| Oat gruel, 250 gm. | 2/ 7 | 1,260 | 1.024 | Alk. | 0 | 0.16 | 2.02 | ± | 0 | 0.38 | ..... | 37 | 0 | 150 |
| Same | 2/ 9 | 2,190 | 1.012 | Alk. | 0 | 0.12 | 2.67 | 0 | 0 | 0.74 | ..... | .. | 0 | ... |
| Carbohydrate-free | 2/10 | 2,610 | 1.015 | Alk. | 0 | 0.13 | 3.43 | 0 | 0 | 1.4 | ..... | .. | 0 | ... |
| Carbohydrate-free | 2/11 | 1,890 | 1.012 | Alk. | 0 | 0.1 | 1.89 | 0 | 0 | 0.71 | ..... | .. | 0 | ... |
| Outside of hospital; carbohydrate-free 5 days | 2 14 | 1,680 | 1.025 | Alk. | 0 | 0.5 | 9.24 | + | + | 0.37 | ..... | .. | 0 | ... |

* In this table + means positive, 0 negative, ± trace and ++ strongly positive. † Plain. ‡ Amphoteric.

The effect on the patient was quite unexpected. There was no change in the urine, either in amount passed or in the sugar excretion, but the day after the puncture the patient began to complain of intense headache and gastric distress. The headache was intractable and lasted for two weeks. It did not yield to phenacetin, pyramidon or bromids, but toward the twelfth day it became less intense and disappeared on the fourteenth.

After recovery from this the patient continued his normal life. In October he became engaged to be married, and at varying intervals we saw him and examined the urine. We saw him last, Dec. 24, 1913. He had been leading a very strenuous, active life; had eaten much of all kinds of carbohydrates; had been indulging freely in cocktails and champagne, and had not even limited the amount of saccharose in his diet. In addition, he had been under severe nervous strain. In fact, he was living under ideal conditions to produce a diabetes mellitus. He weighed 160 pounds, had no symptoms of disease, and even though he was very slack on sleep, he "felt fine." The urinalysis of a twenty-four-hour specimen showed: amount, 1,000; acid in reaction; specific gravity, 1.026; no albumin; no acetone; sugar, 0.9 per cent.; 9 gm. The diet for the day included, for breakfast: grapefruit with sugar, three pieces of toast, coffee with two lumps of sugar; for lunch: two rolls, potatoes, pastry, three lumps of sugar in his coffee; for dinner: rolls, potato and pastry.

The patient was again seen, March 19, 1914. He was feeling splendid, weighed 163 pounds and had no symptoms. A plain specimen of urine voided at 12:30 p. m. after a rather heavy carbohydrate breakfast was acid, had a specific gravity of 1.016 and showed no albumin or acetone. The reduction of Haines' solution was so slight that at first the test was called negative, and it became positive only after standing. Quantitatively 0.2 per cent. sugar was found.

A blood-sugar determination showed the lower limit of normal.

A review of this unusual case shows a healthy young man in whose urine glucose was accidentally discovered during a life-insurance examination. The discovery of glucose followed about one year after a cranial trauma, but whether the two are related belongs entirely to the field of speculation. There were never any symptoms of diabetes mellitus. The excretion of dextrose has been practically independent of carbohydrate intake. The blood-sugar twice determined in von Noorden's clinic was normal. Furthermore, under conditions which in a man of his age would certainly intensify the symptoms and increase the severity of a true diabetes mellitus, the patient has continued to remain in perfect health, and the urine has not taken on the characteristics of urine in diabetes mellitus. *Therefore, not only* does he fill the standards of renal diabetes, but also the clinical course of the case almost surely excludes the diagnosis of diabetes mellitus.

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[15] Johns Hopkins Hosp. Bull., 1911, xxii, 165.

[16] Herrick, James B.: Report of a Case of Diabetes Insipidus with Marked Reduction in the Amount of Urine Following Lumbar Puncture, Arch. Int. Med., July, 1912, p. 1.

104 South Michigan Avenue.

# THE ROENTGEN RAYS IN THE DIAGNOSIS OF GALL-STONES AND CHOLECYSTITIS

## AN IMPROVEMENT IN TECHNIC *

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Shortly after the Roentgen rays had proved their value in the diagnosis of urinary calculi, a number of investigators made an effort to demonstrate biliary calculi, and in 1901 I conducted a series of experiments on the cadaver, and repeated them the following year, but discarded the method as being useless and unreliable.

The following difficulties are encountered in the diagnosis of gall-stones:

1. Their density differs little from the surrounding bile, and with this shadow of the bile we must reckon the shadow cast by the liver, which is also more or less saturated with bile. If the gall-bladder contains little bile the stones can be more easily demonstrated. If the biliary calculi are composed partially of calcium salts, they can be then more easily detected. Therefore, the greater the quantity of bile surrounding the gall-stones in the gall-bladder, or the liver, and the less the density, the greater will be this difficulty. Because of less surrounding bile, calculi in the common duct are more easily shown than in a distended gall-bladder.

2. Pure cholesterin stones can sometimes be recognized by their increased transparency as compared with the liver — giving a sort of mottled appearance. Especially is this true when they are covered with a thin deposit of lime. Biliary calculi occur more frequently in stout persons. Therefore, one meets the same difficulties that are involved in examining stout persons with renal calculi. The small shadow cast by the stone must be differentiated from the shadow cast by a great mass of soft tissues. In such cases, not only are we confronted with the density of a great mass of soft tissue, which in itself lessens the differentiation of our shadows, but we must also contend with the secondary radiation from this mass of soft tissue which by its cross-rays tends to obliterate the sharpness of differential shadows.

Therefore, the stouter the patient, the more difficult will be our task, though one must not conclude that the examination is impossible on this account. In a number of cases in which shadows of the calculi were shown the most clearly, the patients were very stout.

3. On account of the faint differentiation of the shadow of a gall-stone, it is necessary to have the liver and gall-bladder absolutely still. This can be accomplished by carefully training the patient to hold the breath, and by applying as much compression as possible.

4. It has been shown by a number of men that overexposure or underexposure, even when the stones are laid on the plate, will nearly obliterate the shadow. A very high or a low vacuum will have the same effect. Therefore the length of the exposure and the degree of vacuum must be correct. This necessitates a number of plates, made with different time of exposure and different vacuum.

5. One must differentiate the shadow of gall-stone from that cast by calcified costal cartilages, renal calculus and fragments of bismuth, pills or other substances in the stomach or bowel.

In 1910, realizing that our improvements in technic should give us more satisfactory results in the diagnosis of biliary calculi, I renewed my efforts, and in October of that year presented a paper[1] on this subject before the American Roentgen Ray Society.

Since that time a number of investigators have taken up the work. Both Case and myself believe now that about 50 per cent. of gall-stones can be demonstrated, but that negative findings never can be interpreted as indicating the absence of gall-stones.

### TECHNIC

1. *Preparation of Patient.*—The patient should be thoroughly purged. For this I prefer a bottle of magnesium citrate. If possible, the stomach should be empty. Therefore, I prefer to give a purgative in the evening and make the examination the next morning before the patient has eaten breakfast. In this way one eliminates the confusing shadows due to gastro-intestinal contents. One also reduces somewhat the total bulk of substance through which the rays must pass.

2. *Position of Patient.*—Having removed all clothing in the line of exposure, I place the patient on the abdomen with the plate under the gall-bladder region. The arms are extended toward the head so that the patient is resting with the chest, elbows and face flat on the table. The upper part of the body is then bent strongly to the left (not rotated). This opens the space between the lower ribs and the crest of the ilium to the widest possible angle, through which the rays can best reach the gall-bladder. Now I generally add a second examination by passing the rays directly through the liver, between the eleventh and twelfth ribs. This position will serve to differentiate foreign substances or concretions in the bowel. I believe this to be an improvement. I have found a third position useful. It consists in taking a board that will support an 8- by 10-inch plate, and with the patient in the position described above, it is placed under the abdomen, with the edge of the board toward the patient's feet. It is made to dip deeply into the abdomen by placing a triangular block under this lower edge. This brings the plate in closer contact with the gall-bladder.

3. *Position of the Tube.*—The tube with the compression-cylinder diaphragm (Albers-Schonberg) is set so that the rays will pass obliquely through the space between the last rib and the crest of the ilium toward the gall-bladder. By means of the diaphragm cylinder we eliminate many of the secondary rays which in the early days made this work impossible. At times a certain amount of compression can be added, which will lessen the total bulk of tissue, and lessen the distance of the tissue and the diaphragm from the plate.

4. *Exposure.*—This should be made as short as possible, and must of necessity be made while the patient is holding the breath. A little time should be spent in training the patient in holding the breath absolutely still. The absolute time cannot be set, for it will depend on the power of the apparatus, and on the skill of the

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* Read before the Philadelphia County Medical Society in a symposium on gall-bladder disease, March 11, 1914.

[1] Pfahler, G. E.: Am. Quart. Roentgenol., April, 1911.

operator, who must judge quickly at the time, according to the working of the tube. I agree with Rubaschaw[2] that several exposures are generally necessary with different tubes and different times.

5. *Vacuum of the Tube.*—This should be the same as that used in making kidney examinations, and should register from Nos. 6 to 7 on the Benoist scale.

6. *Improvement in Technic for the Demonstration of Less Opaque Calculi, the Outline of the Gall-Bladder and the Under Surface of the Liver.*—Inflation of the Colon and Stomach: After making the preceding investigation one will sometimes be able to demonstrate cholesterin stones and those containing a very minute quantity of calcium salts, which would otherwise be overlooked, by inflating the colon with air. Case suggested this for the demonstration of the lower border of the liver. For this purpose I use a moderate-sized rectal tube, and attach to it an atomizer bulb. With the patient on the fluoroscopic table I then gradually dilate the colon with air, watching the effect until the patient complains of some discomfort and until the lower border of the liver is well outlined. I then make some plates of the lower border of the liver in this position. With a screen directly over the liver, and with a small diaphragm, I watch until the gall-bladder is outlined. One or more plates are then made in this position. The patient is then placed in the vertical posture, which permits the gas to rise more definitely to the upper portion of the colon, and in this way outline the lower border of the liver more fully. When this procedure is not sufficient, or when the left lobe of the liver is under special consideration, air is pumped into the stomach by means of a stomach-tube, or the stomach is distended by means of a Seidlitz powder.

When it is necessary to study the stomach and colon by the bismuth method following this examination, the patient should be placed back on the fluoroscopic table, and the air expelled from the colon through the rectal tube. If this is not done the excess of gas in the colon will distort the stomach and interfere materially with the examination. All of these procedures must, of course, be modified to suit the particular portion of the stomach, or bowel, that is under examination. I find it very difficult to establish any routine method of examination. The technic must be modified in each case according to the probabilities of the diagnosis. After eliminating the air from the colon it can then be injected by the opaque solution, and the bowel studied regularly. It is sometimes difficult to eliminate all the air from the colon, and when obstruction or constriction of the bowel is under serious consideration, it should not be injected for preliminary study. This injection of the colon also interferes with the evidence of adhesions about the duodenum. One must therefore decide what evidence can be sacrificed best.

General Procedure: In general, I make a plate of the right kidney, then turn the patient on the abdomen in Position 1, and make two or more plates; then place the tube over the liver and make another plate in Position 2; then one in Position 3. I then inject the colon and make several plates.

*Renal Calculus.*—In one patient who had the symptoms of gall-bladder disease, I found a stone in the upper part of the right kidney. This can be determined usually by using the customary technic for a kidney examination, when the shadow of the stone will be more distinct and smaller.

*Calcareous Deposits.*—In the costal cartilages calcareous deposits are liable to occur in streaks, to be found on both sides and not to be confined to the region of the gall-bladder. There is, of course, nothing to prevent the occurrence of both gall-stones and calcifications in the costal cartilages in conjunction. In such instances the absolute differentiation is almost impossible.

The possibility of artefacts will occur to every experienced roentgenologist; but this can be eliminated by a repetition of the examination, and by multiple exposures on different plates.

*Pericholecystitis.*—In the diagnosis of cholecystitis by means of the Roentgen rays, the evidence obtained is less direct. One may find an enlarged gall-bladder at times without special technic, during the course of a general gastro-intestinal examination. This is recognized by the displacement of gas in the colon (there is usually some gas present in the hepatic flexure in the upright position), or by displacement of the bismuth content in the duodenum or colon. The enlarged gall-bladder can be demonstrated further by the injection of the colon with air.

Pericholecystitis is liable to be followed by or associated with adhesions to the duodenum or colon. By inference when adhesions of the duodenum are found this may indicate a preceding or associated cholecystitis. The interpretation of adhesions in the gall-bladder region must be made with great care. When in a relaxed, thin abdomen one finds the duodenum drawn up and to the right, to the under surface of the liver, moving upward with the diaphragm or liver, and occupying a relatively abnormally high position with relation to the normal attachments, one has little difficulty in deciding that adhesions are present. This is especially true when there is associated evidence in these cases of adhesions about the hepatic flexure, and when there is associated deformity in the outline of the duodenum; but when these conditions are not all present, and when one is dealing with a patient who is well nourished or even at times fat, the recognition and demonstration of adhesions is difficult, and should be interpreted with the greatest care, for a fat abdomen naturally holds the stomach high and crowds the stomach and duodenum up close to the liver. Sometimes one can hold a stomach down in such cases, and determine whether or not, during the forced expiration, the duodenum moves disproportionately upward with the liver.

In an effort to determine as nearly as possible the value of the Roentgen rays in the special studies of the gall-bladder, I have tried to trace the various cases that have been studied. I have received reports concerning fifty patients. Of these, seventeen have not yet been operated on, and therefore must be eliminated from our conclusions. Thirty-three have been operated on. Of this number stones were found by me in twenty. Stones were found by the surgeon in twenty-seven. The probability of stones was diagnosed in two others, which were not found. A probable diagnosis of stones was made in seventeen other cases, in which the patients have not yet been operated on, but in which the evidence obtained was strong enough to be reduced to lantern-slides. In all, twenty-seven patients had gall-stones removed by the surgeon. Of this number, twenty, or 74 per cent., were demonstrated by the Roentgen rays. I believe that this percentage is high, and that in general not more than 50 per cent. can be shown, unless, perhaps, by the improved technic described, which has been employed only in recent cases.

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[2] Rubaschaw: Fortschr. a. d. Geb. d. Roentgenstrahl., xxi, 533.

My percentage of positive findings is unusually high, probably because I have been making the effort to find the gall-stones. Contrary to Case[3] and Cole,[4] I do not expect to find the gall-stones during a bismuth study of the gastro-intestinal tract, but make a direct preliminary study for gall-stones by the special technic which I have described, and then follow with the bismuth study. In only one of the thirty-four cases in which I have found evidence of gall-stones did I find the stones during the bismuth study of the gastro-intestinal tract, and in that case the stones were so dense that no one could overlook them. Stones containing a high percentage of lime-salts can of course be demonstrated in this way, but in most of my cases the stones contained very little lime-salts, and could be seen only on a very clear plate by careful oblique illumination.

Likewise for the demonstration of these light stones, screens, as recommended by Cole, are unreliable. In nearly all cases I used screened and unscreened plates, and rarely was able to recognize the stones on the intensified screen plates.

### CONCLUSIONS

1. Gall-stones can be shown only when they are composed of a substance of greater or less density than the surrounding tissues. This will usually mean that they must contain some lime-salts, though this quantity may be small.

2. My records show positive findings in 74 per cent., but I believe in general one cannot count on more than 50 per cent. being demonstrable. I believe that a negative diagnosis at present has no value.

3. It is possible that with the improved technic, when we find the gall-bladder small, and still find no stone, it may become of some value in negative diagnosis.

4. The estimation of the value of this method of diagnosis must be based only on the work of roentgenologists who have mastered a good technic, and who are thorough in their work.

5. Definite information will be obtained only by continued cooperation of the surgeon and the roentgenologist.

6. In the future I believe that we shall obtain valuable information concerning the liver and spleen by the roentgen method described.

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# THE ABSORPTION AND TENSILE STRENGTH OF CERTAIN ABSORBABLE ANIMAL LIGATURES

## A PRELIMINARY REPORT

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While much laboratory work has been done on the standardization of various therapeutic agents, before their introduction into the human organism, suture materials have, up to the present, been neglected. Too often the poor quality and careless preparation of catgut have been discovered only by its postoperative ill effects, whereas previous experiment might have averted such accidents.

This report is the result of 119 implantations, in animals, of various sizes and preparations of catgut and kangaroo tendon. The animals used to yield the final standardization results were robust Belgian hares and small healthy dogs. It was noticed, that in a few of the animals which became infected with a disease characterized by a nasal catarrh and emaciation, the absorption period of the ligatures was much delayed. This may be the reason why in some patients the absorption time has been exceeded and may be due to a decrease in metabolic processes dependent on a lowered vitality.

In five of the cases in which the dressings were purposely not applied to the experimental incisions a staphylococcus infection was noted. In these cases the absorption of the ligatures was much delayed and sutures removed from the wounds were found covered by a cheesy exudate consisting of dead leukocytes, fibrin and detritus, which could be scraped from the attenuated suture, but which formed a coating sufficiently dense to prohibit the free access of tissue fluids and cells.

The catgut standardized so far has been prepared by the cumol method of Krönig, and has been compared with catgut prepared by different manufacturers using the same method, and also with catgut prepared by the liquid petrolatum and iodin method of Bartlett. Although catgut prepared by the latter process has less tensile strength and may not be heated, it otherwise has about the same properties as catgut sterilized by the cumol method.

TABLE 1.—ABSORPTION PERIOD

| Nature of Material | Tissue of Implantation | Absorption Period |
|---|---|---|
| Plain Catgut— | | |
| Size | | Days |
| 00 | Human prepuce (circumcision) | 7 |
| 0 | Muscle | 11 |
| 0 | Fascia | 10 |
| 1 | Muscle | 13 |
| 2 | Muscle | 16 |
| 3 | Muscle | 21 |
| Chromic Catgut "20-day"— | | |
| 1 | Peritoneum | 18 |
| 1 | Muscle | 22 |
| 1 | Fascia | 20 |
| 2 | Muscle | 20 |
| 3 | Fascia | 20 |
| Kangaroo Tendon— | | |
| Fine | Peritoneum | 30 |
| Fine | Fascia | 30 |
| Medium | Fascia | 38 |

An important yet simple process, which, in the manufacture of chromic catgut, is frequently omitted or done in a careless manner, is the neutralization of the potassium bichromate in the catgut after the chromicizing bath. If this neutralization is not carefully carried out, the formation of a sinus extending outward from the offending suture often results, adding five or ten days to convalescence and sometimes interfering seriously with the proper healing of the wound.

From certain of the animals the suture materials were removed at various periods before absorption was complete, and then were tested as to their tensile strength. This has been done in only a few cases, and the series is not yet complete.

In the case of kangaroo tendon it was found that the period of absorption as usually stated is too long. Some of the tendons had disappeared by the thirtieth day, except in a few cases in which the tendon was attenuated to very thin strands, the size of fine hairs.

A rather unexpected result was the slightly more rapid disappearance of sutures from fascia than from muscle. If both specimens were unabsorbed there was invariably more attenuation of the catgut implanted in the fascia, and in cases in which the suture had disappeared from the fascia, small strands were found in the muscle.

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3. Case: Arch. Roentgen Rays, September, 1913, 135.
4. Cole: Surg. Gynec. and Obst., February, 1913.

In our experiment with plain catgut it was surprising to notice the increased absorption time in all specimens. That cumol has nothing to do with this was shown by similar tests with gut prepared by other methods.

As yet it has been impracticable to implant the coarser grades of kangaroo tendon in rabbits and dogs. On account of the stiffness and roughness of the suture material the implantation produces trauma in the more delicate tissues.

TABLE 2.—TENSILE STRENGTH

| Size | Plain Catgut Before Implantation Pounds | Plain Catgut Implanted 5 Days Pounds | Chromic Catgut Before Implantation Pounds | Chromic Catgut Implanted 5 Days Pounds | Chromic Catgut Implanted 10 Days Pounds |
|---|---|---|---|---|---|
| 00 | 12 | .... | 10 | 7.5 | 6.5 |
| 0 | 20 | 8.5 | 17.5 | 10.5 | 8.5 |
| 1 | 25 | 11 | 23 | 13.8 | 9.5 |
| 2 | 33 | 14.5 | 30.5 | 18.7 | 14.5 |
| 3 | 40 | 21 | 37.7 | 26.5 | .... |

"30-day Chromic" No. 0 at 9 days gave 16 pounds.
"30-day Chromic" No. 2 at 5 days gave 22 pounds.
"40-day Chromic" No. 2 at 5 days gave 28 pounds.

The figures in Table 2 indicate the breaking-point of the various kinds of suture materials when submitted to a sudden quick jerk.

I wish to express to Dr. Cassius H. Watson my sincere appreciation for aid and advice during the progress of these experiments and also my indebtedness to Dr. Henry A. Fisher and to Dr. William F. McKenna for their valuable assistance.

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# A CLINICAL METHOD FOR THE RAPID ESTIMATION OF THE QUANTITY OF DEXTROSE IN URINE

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Methods for the clinical determination of the quantity of dextrose in urine have never been very satisfactory. Practically the only method used to any extent is that which employs the Einhorn fermentation saccharimeter. This method is very inaccurate, errors resulting from differences in the activity of the yeast used and in the temperature at which the instrument is kept while fermentation is proceeding. Another disadvantage of the fermentation procedure is that several hours at least must elapse before a final reading can be made.

Recognizing the inadequacy of this method, I have attempted to devise a method for the colorimetric determination of dextrose in urine which is simple, fairly accurate and rapid. Several colorimetric methods for the determination of dextrose in urine have been described. Among these are the methods of Neitzel,[1] Ruini,[2] Järvinem[3] and Dehn and Hartman.[4]

These methods, however, are hardly suitable for the use of the physician. Nor is the method of Autentrieth[5] and his co-workers easily carried out in the office of the practitioner. This method requires the use of Bang's[6] solution, and necessitates the decolorization of most urines.

The Autentrieth method has been modified by Forschbach and Severin[7] for the colorimetric estimation of dextrose in blood; about thirty minutes is required for this procedure, and the method is quite successful.

My method is exceedingly simple and the time required for an estimation is from ten to twelve minutes. Besides an ordinary glass funnel and filter paper, test-tube and Bunsen burner, the only apparatus necessary is:

1. A small graduated cylinder, or a 15 c.c. pipet.
2. A 1 c.c. pipet.
3. A 7-inch test-tube.
4. Set of standard vials.
5. An extra vial.

The reagents are:

1. Benedict's solution[8]
2. Strong ammonium hydroxid solution.

This solution is prepared as follows:

| | Gm. |
|---|---|
| Copper sulphate ........................ | 17.3 |
| Sodium citrate ........................ | 173.0 |
| Sodium carbonate (anhydrous) ........... | 100.0 |

Dissolve the copper sulphate in from 100 to 150 c.c. of distilled water and add slowly, with stirring to a filtered solution (about 800 c.c.) of the other ingredients and make up to one liter.

The procedure is as follows: To 15 c.c. of Benedict's solution, 1 c.c. of urine is added (from the 1 c.c. pipet). The mixture is put into the 7-inch test-tube and is boiled four minutes. It is then filtered. Into the "extra vial," 5 c.c. of this filtrate and 1 c.c. of ammonium hydroxid solution are placed and the color of this solution is compared with the standard vials, the preparation of which is described below.

In the boiling, a certain amount of copper in the Benedict solution is reduced, leaving amounts of unreduced copper in the solution corresponding inversely to the quantity of sugar in the urine used. The ammonium hydroxid forms ammonium copper salts, giving a deep blue color and insuring, consequently, greater ease in comparing the color in the unknown solution with the standard vials, than if the untreated filtrates were compared. The standard vials that I used were ordinary 2-dram, long homeopathic vials, rubber-stoppered, and the solutions in them were prepared by the reduction of standard dextrose solutions of 0.0, 0.5, 1.0, 1.5, 2.0 and 2.5 per cent. in the same manner which has been described above.

It has been found convenient to have the "extra vial" marked at 6 c.c., then 1 c.c. of ammonium hydroxid can be placed in the vial first and filtrate is added to the mark on the vial.

Estimations have been made of the quantities of dextrose in urine by fermentation, polariscope, and the method described above. The results of these estimations are given in the accompanying table.

There are a few minor disadvantages about this method. In the first place, the estimations are practically all a bit higher than the polariscopic readings. Several factors no doubt contribute toward this error, which, however, is almost constant, and there are no inconsistent variations such as occur in the fermentation method. The range of the apparatus is small, but in more concentrated urines, dilution can be resorted to, and no appreciable error will result (*H*, *K*, in table). On the other hand, the range of the fermentation

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1. Neitzel: Chem. Ztg., 1894, 290.
2. Ruini: Gazz. chim. italiana, 1901, xxxi, Part II, 445.
3. Järvinem: Ztschr. f. anal. Chem., 1913, lvii, 14.
4. Dehn and Hartman: Jour. Am. Chem. Soc., 1914, xxxvi, 403.
5. Autentrieth and Tesdorf: München. med. Wchnschr., 1910, No. 34, 1780. Autentrieth and Müller: München. med. Wchnschr., 1911, lviii, 899. Autentrieth and Funk: München. med. Wchnschr., 1912, lix, 689.
6. Bang: Biochem. Ztschr., 1906, ii, 271.

rin: Arch. f. exper. Path. u. Pharmak.,

: Jour. Biol. Chem., 1911, ix, 57; The of Glucose in Urine, The Journal 1193.

saccharimeter is limited to 1 per cent., and dilution as well as the quality of the yeast seems to modify its exactness considerably.

While the polariscope no doubt offers a very accurate means of determining quantities of glucose in urine, it has, however, two drawbacks. First, in cases of acidosis, it is necessary to rotate the urine before and after fermentation, as levorotatory substances present cause a considerable error, as is shown in the table (*K*). And, as fermentation consumes several hours, the rapidity of polariscopic determinations is diminished in these cases. Secondly, because of its considerable cost, the polariscope is not available to most physicians.

There are several advantages of the method of determining dextrose described above. The apparatus and reagents are simple and easy to procure. The ammonium hydroxid which I used was ordinary strong household ammonia. Benedict's solution is familiar to almost every physician; it keeps indefinitely, is very delicate and is rapidly replacing Fehling's solution. A liter can be prepared by anyone in twenty minutes at a ridiculously low cost.

TABLE OF ESTIMATIONS OF THE QUANTITY OF DEXTROSE IN URINES

| | Fermentation* Per Cent. | Polariscope Per Cent. | Author's Method Per Cent. |
|---|---|---|---|
| A. | 0.04 | 0.10 | ± |
| B. | 0.48 | 0.43 | 0.5 |
| C. | 0.96 | 0.94 | 1.0 |
| D. | 1.68 | 1.44 | 1.0-1.5 |
| E. | 2.8 | 2.91 | 3.0 |
| F. | 1.56 | 1.52 | 1.5-2.0 |
| G. | 1.2 | 1.69 | 2.0 |
| H. | 2.4 | 5.2 | 5.25 |
| I. | 0.48 | 1.42 | 1.5 |
| J. | 0.2 | 2.0 | 2.25 |
| K.† | 2.2 | 4.19‡<br>4.48§ | ....<br>4.5 |

* Fermentations were done under the same conditions as regards temperature.

† Urine was levorotatory after fermentation.

‡ Without fermentation.

§ With fermentation.

± Reaction positive, but less than 0.5.

The advantage of Benedict's over Bang's solution appears to me to be the fact that the former solution contains more copper sulphate per liter, and consequently less reagent is needed for the same quantity of urine, and decolorization of the urine is not necessary, because of the small amount of urine used, and because of the deep blue of the end-reaction.

It is possible that instead of making standards from actual determinations, standard bottles of a solution of a copper salt, for example, ammoniated copper ($CuSO_4(NH_4)_2SO_4 \cdot 6H_2O$) can be made and provided, either in sets of standard tubes, or for colorimeters. Experiments toward this end, as well as comparisons of this method with gravimetric determinations will be pursued at a future date.

It seems, at present, probable that this method for rough quantitative sugar estimation, merely for clinical work, will be highly satisfactory.

I wish to extend my thanks to Dr. Lafayette B. Mendel of the Sheffield Scientific School of Yale University for his kind advice and for the use of the facilities of the biological laboratory of that institution.

39 Howe Street.

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**Efficient Versus Effective Health Departments.**—A health department may be 100 per cent. efficient but only 15 per cent. effective by reason of a penny-wise and health-foolish policy in apportionment of funds for operation.—*Bull. Chicago School of Sanitary Instruction.*

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# A NEW FLUOROSCOPIC SIGN FOR THE DIFFERENTIATION OF PYLORIC SPASM OF EXTRAGASTRIC ORIGIN

## FROM THAT ASSOCIATED WITH UNCOMPLICATED GASTRIC ULCER ON OR NEAR THE LESSER CURVATURE

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In young adults of both sexes the most common cause of gastric hyperacidity is pyloric spasm, associated with subacute or chronic inflammation of the appendix or gall-bladder, or both. This hyperacidity is not infrequently complicated by hypersecretion. These facts have been established by my personal study of 7,041 consecutive test-meal analyses at the Mayo Clinic and at Augustana Hospital. In 2,183 cases operative proof, with consideration of the postoperative course, was possible.

On account of clinical symptoms and signs, this group of cases is frequently confused with, or diagnosed as "medical" gastric ulcer of the young. The clinical manifestations are: acid dyspepsia, epigastric distress and tenderness, occasionally nausea and vomiting, fluctuations in appetite, anemia and "hunger pain." Test-meal examinations of such patients generally reveal intermittent gastric stagnation (4 per cent.), hyperacidity and, if the ailment has persisted for an average time of 2.8 years, hypersecretion, periodic or continuous.

These observations are abundantly supported by the experimental work of Eppinger and Hess,[1] and by the clinical reports of Graham,[2] Aaron[3] and Baar.[4]

In persons of the type under consideration, however, gastric ulcer associated with pyloric spasm not uncommonly occurs. My records show that this happens in approximately one out of nine such cases. With the exception of those instances in which hematemesis or melena has been demonstrated, the clinical manifestations most closely simulate those associated with pyloric spasm from appendix or gall-bladder disease. Inasmuch as, clinically, there is no differentiating feature, the problem in this 11.1 per cent. of cases becomes an important one from the points of view of diagnosis, prognosis and treatment. Both the extragastric and the intragastric lesions may be confused, or in the recognition of the former, the latter may be overlooked.

The recent rapid development of fluoroscopic examination of the stomach containing material opaque to Roentgen rays has contributed much to our better understanding of the factors underlying the clinical exhibition of pyloric spasm. By this diagnostic procedure, fully 60 per cent. of calloused and complicated ulcers are readily recognized and located with fair accuracy. Acute ulcers or those involving the pyloric half of the stomach or near the lesser curvature (particularly if these are of the uncomplicated type) must be judged to exist largely in the light of clinical history and laboratory data. This group furnishes the great majority of incorrect Roentgen-ray diagnoses. At laparotomy, appendix or gall-bladder disease is the usual finding when the mistake has been made. This fact has been commented on by Case,[5] Carman[6] and others. I have satisfied myself on this score from a personal study of the reports of more than 1,600 Roentgen-ray examinations of gastric function.

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[1] Eppinger and Hess: Ztschr. f. klin. Med., lxvii, 205, and lxviii, 345.

[2] Graham: Collected Papers of the Mayo Clinic, ii, 39, 1910.

[3] Aaron: Arch. f. Verdauungskr., 1913, xix, 344.

[4] Baar: Die Indikanurie, 1913.

[5] Case: Jour. Michigan State Med. Soc., 1913, xii, 577.

[6] Carman, R. D.: Mayo Clinic, personal communication to the author.

In the group of cases with the type of pyloric spasm under discussion, routine examination by the fluoroscopic screen presents very similar pictures. The evidence in these hyperacidity cases is: hypertonic stomach, vigorous peristalsis, rapid visualization of the duodenum, tenderness or muscle spasm over the region of the pylorus, and possibly abnormal contractures on the greater curvature, which are readily mistaken for incisurae. There may be "physiologic" hour-glass stomach.

From a somewhat extensive experience, I have found the following fluoroscopic observations of value in the differentiation between the pyloric spasm associated with uncomplicated ulcer near the lesser curvature and that present when the lesion is solely in the appendix or gall-bladder:

1. *Technic*—The motor function is estimated by examination for evidences of the bismuth or barium meal at the end of a six-hour interval following its administration. The patient is then screened during and after his taking a standard buttermilk-bismuth (or barium) suspension.

2. *Similar Findings.*—(*a*) Unless marked gastric atony is present, rarely retention of the motor meal; (*b*) hypertonic stomach; (*c*) usually vigorous gastric peristalsis; (*d*) prompt visualization of the duodenum; (*e*) free movement of the stomach, laterally or vertically, by palpation or kneading; (*f*) tenderness to moderate or deep pressure over the pyloric region.

3. *Variable Findings.*—(*a*) Abnormal peristaltic waves, that is, true incisurae or incisura-like niches on the greater curvature, especially if the stomach is kneaded or tapped; (*b*) tender areas along the lesser curvature which move with change of position of the stomach; (*c*) tenderness in the midepigastrium, in the right iliac fossa or in the anatomic region of the gall-bladder.

4. The patient then receives $^{1}/_{50}$ grain of atropin sulphate hypodermatically. He is rescreened in a half hour. If much of the bismuth or barium mixture has left the stomach, more should then be given.

5. *Findings at Second Examination.*—(*a*) In true, uncomplicated ulcers on or near the lesser curvature, palpation carried on vigorously along the lesser curvature will usually locate a point of maximum tenderness. Palpation at this point will generally be accompanied by such permanent spasm of the circular muscle fibers of the stomach wall as to bring out a readily recognizable incisura on the greater curvature. This is approximately at the same level as the local tender area on the lesser curvature. The phenomenon may be elicited with the stomach moved laterally or vertically. The incisura thus brought out after atropin is readily distinguished from normal peristalsis. Tenderness over the pyloric region is a variable finding. There may be spasm or tenderness in the gall-bladder or appendix regions if these parts are also diseased.

(*b*) In cases of pyloric spasm associated with appendix or gall-bladder lesions but with no gastric ulcer present, vigorous palpation along the lesser curvature may be accompanied by evidence of tenderness, but fails to delimit local foci of distress associated with incisurae or incisura-like niches along the greater curvature, or areas of local tenderness that correlate with the stomach on its being moved about. Tenderness over the pars pylorica is a variable finding. Tenderness in the right iliac fossa or in the gall-bladder region (especially at the end of deep inspiration) is often exhibited.

6. Reexamination of the patient on different days should demonstrate the constancy of the differential sign outlined above.

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# THE EFFECT OF OPERATION ON KIDNEY EXCRETION AS INDICATED BY THE PHENOLSULPHONEPHTHALEIN TEST *

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Although the use of phenolsulphonephthalein in estimating kidney function is of only a few years' standing, it is to-day probably the most accurate index of renal elimination which we possess. It has been put to test all over the world and in all classes of cases with a resulting uniform praise of its accuracy, being considered superior to a chemical and microscopic examination of the urine in showing the actual work that the kidneys are doing.

Geraghty says that albumin and casts are no index of the severity of a kidney lesion, being present frequently in marked degree when the pathologic change in the kidney is slight, while on the other hand severely damaged kidneys may be present when there are very few abnormal constituents in the urine, whereas the phenolsulphonephthalein test, according to him, will practically always tally with the kidney changes. As a demonstration of this fact, I shall cite a case of a woman who was sent to the University Hospital by Dr. Fussell in June, 1913.

## REPORT OF CASE

The patient had been ill for four months with a mass in the left kidney region, and one month previous to admission she developed a similar mass on the right side. She walked into the hospital and a phenolsulphonephthalein test performed on admission showed no excretion in two hours. The blood examination was negative; the urine had a specific gravity of 1.011 and contained a trace of albumin; otherwise it was negative. In view of these findings, the phenolsulphonephthalein test was repeated with the same result, although the woman was apparently in no dangerous condition. The woman died in uremic coma about two weeks after admission, having had an attack of hematuria a few days before death. The highest blood-pressure reading was 160 mm. Hg systolic, which was two days before death. The diagnosis was not definitely settled, as no necropsy was permitted, but it lay between congenital polycystic kidneys and hypernephromas of the kidneys. This case, I think, demonstrates clearly the superiority of the phenolsulphonephthalein test over the usual laboratory test for kidney function.

Contrary to Geraghty's opinion, several cases of severely damaged kidneys with a phenolsulphonephthalein output greater than normal have been reported, such as those reported by Pepper and Austin[1] within the last year. Phenolsulphonephthalein is recognized as the standard test, however, and has been used as such in the cases which form the basis of this report.

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* Read before the Philadelphia Pathological Society, Jan. 22, 1914.

[1] Pepper, O. H. P., and Austin, J. H.: Some Interesting Results with Phenolsulphonephthalein Tests, Am. Jour. Med. Sc., 1913, cxlv, No. 2, p. 254.

At the suggestion of Dr. F. E. Keene the phenolsulphonephthalein test was applied to about twenty patients on admission to the gynecologic ward at the University Hospital. These patients were selected without preference. All had been sent in for operation and consequently had been supposed to be good surgical risks by their respective attending physicians. It was decided to note the amount of elimination of phenolsulphonephthalein before operation, the duration of anesthesia, the character of the operation, the position of the patient while on the table and again the amount of elimination of the drug approximately twenty-four hours after operation. The patients all received the routine preliminary preparations, which consisted merely of a purgative the night before operation, there being no reduction in the amount of food or drink until the morning of operation. Each of those who had abdominal operations received an enema of 2,000 c.c. of sterile water on the table at the completion of the operation and a hypodermic injection of 1/4 grain morphin sulphate and 1/150 grain atropin sulphate soon after operation. In two patients the tests were never completed; one, who had a cholecystostomy, being too sick after operation to be disturbed, while the other who had a phenolsulphonephthalein excretion of 30 per cent. on admission, died the following day, not having been operated on. Necropsy showed a large hydronephrosis of the right kidney caused by a calculus occluding the renal duct.

The amount of phenolsulphonephthalein excretion before operation varied from 20 to 90 per cent., while the excretion after operation varied from 25 to 80 per cent. The average duration of anesthesia was about one hour, and the operations were for the most part pelvic and plastic, although there were two kidney cases and one case of intestinal resection. There were four positions used on the operating-table, namely, dorsal, lithotomy, Trendelenburg and the lateral posture for kidney cases.

The examinations showed that four patients excreted the same amount of phenolsulphonephthalein after operation as before; two of these had albumin and casts in the urine before operation. Eight patients showed a decrease after operation, this decrease amounting to 15 per cent. or less in every case but one. This patient had a cloud of albumin and granular casts in the urine before operation, but was excreting 90 per cent. of phenolsulphonephthalein; after operation, however, the excretion dropped to 25 per cent., although the patient merely had a plastic operation and showed no symptoms of any renal disturbance afterward. A case in which nephrectomy was performed for renal calculi showed a decrease of only 5 per cent. In this case the indigocarmin test also was performed before operation and showed that the diseased kidney was entirely functionless while the opposite kidney began to excrete the dye in twenty-six minutes, thus showing that the length of the delay in the excretion of indigocarmin does not always indicate the amount of decrease in the function of the kidney. The remaining six cases showed an increase in the excretion after operation; in two cases the increase amounting to 30 and 45 per cent., respectively, the latter case only showing 20 per cent. before operation.

Although ether has long been known as a renal irritant, and kidney irritation following its use, as evidenced by the appearance of casts in a previously normal urine, is a common observation, nevertheless there has been absolutely no relation between the length of anesthesia and the diminution in the excretory power of the kidneys in these cases—assuming, of course, that phenolsulphonephthalein is a reliable guide.

Bovée[2] states that chloroform and ether and also the Trendelenburg posture have little effect on the production of albumin and casts in the urine, although these agents all decrease the rate of urinary excretion and the amount of urea, but that in any event the quantity and quality of the urine is practically always normal at the end of twenty-four hours after operation. In this series the quantity of the urine and the amount of urea were not observed, but the position of the patient on the table, the character of the operation and the administration or omission of proctoclysis likewise gave no evidence of having any special effect on the kidney function. Although many of the patients had traces of albumin and even hyaline or light granular casts in the urine before operation, there was no greater diminution of excretion in these cases than in those with normal urine, and in some there was an increase after operation. The only patient who showed a marked decrease after operation was also the only one who had a cloud of albumin with casts in the urine before operation.

It is noteworthy that in all the cases which showed a diminution after operation, the diminution was most marked in the first hour, the excretion during the second hour usually increasing after operation, which seems to indicate that the damage to the kidneys is slight if anything.

## TENTATIVE CONCLUSIONS

Although this series is entirely too small to serve as a basis for any definite conclusions, nevertheless, as far as it has gone it seems to indicate the following:

1. The effect of ether anesthesia on healthy kidneys is practically *nil* so far as reducing the excretory power of these organs is concerned.
2. Traces of albumin in the urine before operation should not give much concern, but clouds of albumin accompanied by casts should be considered seriously before the performance of elective operations.
3. The duration of anesthesia in any given case does not in itself signify the amount of injury which the kidneys will sustain.
4. The position of the patient on the table, the character of the operation and the administration of proctoclysis have not shown any effect of the percentage of phenolsulphonephthalein excretion after as compared with that before operation.
5. In one-third of the cases there is an increased excretion after operation.

I wish to express my indebtedness to Dr. John G. Clark and Dr. Floyd E. Keene for the privilege of reporting these observations.

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[2] Bovée, J. W.: Renal Excretion during the Administration of Chloroform and Ether in Gynecological Surgical Operations, Tr. Am. Gyn. Soc., 1909, xxxiv, 270. The Influence of the Trendelenburg Position on Quantity of Urine Excreted during Anesthesia, Tr. Am. Gyn. Soc., 1910, xxxv, 443.

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**Public Instruction in Temperance.**—Drunkenness cannot be eliminated or materially reduced unless the public demands such reduction. The public obviously will not force the prevention of drunkenness until convinced of the harm caused by intemperance. It is of greatest importance, therefore, that the public should be continuously informed of the evil effects caused by the abuse of alcohol and of the cost of drunkenness to the state.—Report of Commission to Investigate Drunkenness in Massachusetts.

# FORM OF THE ELECTROCARDIOGRAM

## DIAGNOSTIC SIGNIFICANCE OF ITS VARIATIONS *

HAROLD E. B. PARDEE, M.D.
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An attempt will be made to explain in an easily understandable manner a few basic facts about electrocardiographic records and their interpretation. I shall first discuss why and how an electric current is obtained from the heart, and then consider in detail the records obtained in normal and pathologic conditions.

When any muscle contracts it produces electricity. The potential is produced at the area which is entering into contraction, all quiescent parts of the muscle being electronegative, so that a current tends to flow toward every quiescent muscle area. This is called the *action current.* If a wire be placed with one end on a contracting part of the muscle and the other on a part which has not yet begun to contract or which has finished its contraction, a circuit will be completed and current will flow through the wire from the quiescent part back toward the contracting part of the muscle. The conditions are quite similar to those of an electric battery. Within the battery the flow is from *zinc to carbon,* but through the wires outside the flow is from *carbon to zinc.*

The contractions of the heart, like any other muscle, are accompanied by electric effects, but owing to the heart's complex muscle structure the current is also complex. Each normal cardiac contraction is considered to originate in the sinus node which lies in the part of the right auricle between the superior and the inferior venae cavae. The contraction spreads over the auricles in a wave-like manner and there is produced on the auriculoventricular node of Tawara some effect which results in the passage of an impulse, possibly also a contraction, along the bundle of His and its branches. The terminal branches of this bundle lie about the bases of the papillary muscles of each ventricle, and the impulse, reaching the bundle terminals in both ventricles at about the same time, causes the muscle of each chamber to contract synchronously.

The body-tissues form an excellent electric conductor, so that the heart's current may be obtained by attaching electrodes to any two of the limbs. A small German-silver plate may be bound about the limb by bandages soaked in strong salt solution, or the patient may be seated in a chair with the hands and feet immersed in a jar of strong salt solution containing a porous cup of zinc sulphate solution. The wires are connected to the silver plate or to a zinc bar immersed in the zinc sulphate solution. The current thus obtained is recorded by a galvanometer, the most satisfactory type of which is the string galvanometer of Einthoven. The principle of this instrument is that when a current is passed through a delicate fiber of platinum or silver-plated quartz which is suspended between the poles of a powerful magnet, the fiber is bent a varying distance to one side or the other according to the intensity and direction of the current. The movements of the fiber are photographed on a moving film or plate.

To obtain the heart's action current clinically, it has become customary to use but three of the various possible combinations of the extremities. These are right arm and left arm, right arm and leg, and left arm and leg, and although the two legs are so situated in relation to the heart as to be practically equivalent, the left leg is always used. These combinations are called leads: Lead I, Lead II and Lead III, respectively, and are seen to be transverse, oblique and left lateral in relation to the trunk.[1]

These three extremities form a triangle with the apex directed downward and the heart at its approximate center. Figure 1 represents this fact, and the triangle may be considered as represented, to be equilateral and to have the central point of the heart as its actual center. In each lead one extremity lies nearer to the base of the heart, the other to the apex. In Lead I the right arm is basal, the left arm apical. In Lead III the left arm is basal and the leg is apical, etc.

When the extremities are connected to the galvanometer, the basal and apical extremities of each lead are always connected to corresponding poles, and a *current flowing through the instrument from an apical toward a basal extremity* will always produce an *upward movement in the line of record.* The reverse of this is also true: a *current flowing from a basal toward an apical extremity* will always produce a *downward movement.*

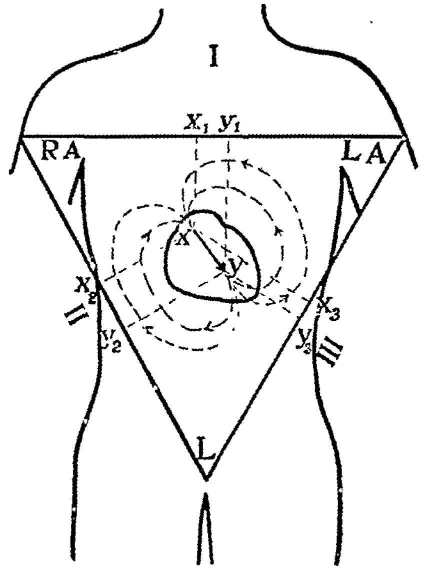

Fig. 1.—*R A*, right arm; *L A*, left arm; *L*, left leg. The Roman numerals outside of the triangle designate the number of the lead to which the respective sides correspond.

The instrument should be *standardized before each lead is taken* so that we can regard equal excursions in different records as being produced by equal currents. The usual standard is that a potential difference of 1 millivolt in the circuit containing the patient and the galvanometer string shall cause a movement of 1 cm. in the record.

Figure 2 is a quite typical record obtained by this technic. It shows in each lead repetitions of a group of movements of practically constant form separated by a level line, the abscissa or zero level of the record. Each group represents one heart cycle and consists of three upwardly directed and two downwardly directed waves or peaks. These were designated by Einthoven by the neutral letters P, Q, R, S, T, a nomenclature now almost universally used. If it is desired to speak of a wave in a certain lead the Roman numeral of the lead is affixed, as RI, RII, RIII, etc.

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* Read before the Section on Medicine of the New York Academy of Medicine, Jan. 20, 1914.

* From the Department of Physiology, College of Physicians and Surgeons, Columbia University.

[1] For the construction of the galvanometer and technic of obtaining records: See Einthoven: Le telecardiogram, Arch. internat. physiol., 1906, iv, 132. James and Williams: The Electrocardiograph in Clinical Medicine, Am. Jour. Med. Sc., 1910, cxl, 408.

It is quite evident on looking over a series of records from different normal persons that there is no one form which can be called the normal electrocardiogram. Each peak is subject to variations within certain limits, and the resulting permutations are so numerous that though records from the same person at different times are practically identical, no two records from different persons are exactly alike. There are quite definite limits to the normal variations of the waves, and these will be outlined.

### THE NORMAL WAVES

The first wave, called P, is known to be due to the action of the auricle. It is a small rounded or blunt-pointed elevation, varying in height from 1.5 to 2 mm., usually directed upward in all three leads, and highest in Lead II. Rarely its descending limb sinks below the zero level. In some cases which cannot be considered abnormal PIII is downwardly directed, in which case PI is larger than PII.

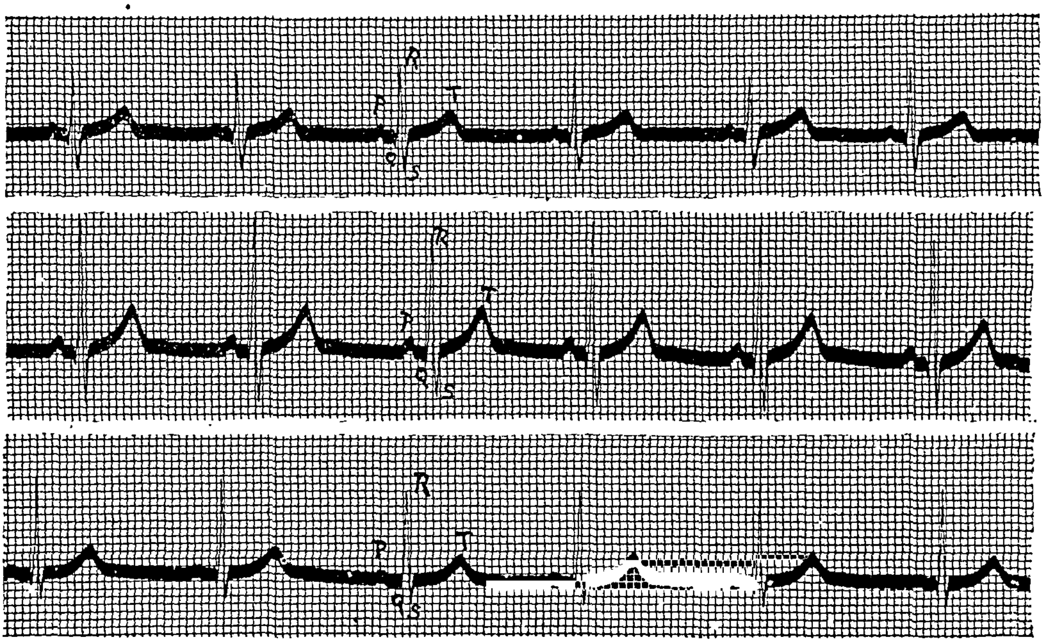

Fig. 2.—Electrocardiogram from a normal person, a member of the Columbia University cross-country team. In this and in all succeeding records one division of abscissae represents 0.04 second and of ordinates 0.0001 volt. In the originals these divisions are actual millimeters.

During the interval between P and the next movement of the record, the impulse from the auricles is passing along the auriculoventricular conduction system toward the ventricles, but has not yet caused them to contract. Since the record is practically stationary at zero during this time we conclude that this impulse is not accompanied by an electric effect of any magnitude. This interval varies from 0.12 to 0.18 second, but probably nothing under 0.20 second should be considered as evidence of impaired function of the conducting system; that is, a tendency to heart-block.

The record of the ventricular contraction is ushered in by a series of three very brief waves: first, a downward one called Q, then an upward one, R, and another downward one, S. This of course denotes a rapid changing of the direction of the currents which occur at the beginning of the ventricular systole.

The wave Q, at times entirely lacking, is usually small, not over 2 mm. in height, and is regularly directed sharply downward in all three leads. Its ascending limb passes directly into the ascending limb of R, which is the highest and clinically the most important wave of the group. With normal hearts, R is directed sharply upward in all three leads. It may be quite small in Lead I or Lead III, but Lead III is usually higher than Lead I. Lead II always registers the highest value, varying from 10 to 20 mm. S is directed downward in all three leads, and begins in the descending limb of R. It is a sharp peak, usually larger than Q, and varies up to 5 or 6 mm. It also may be entirely absent, though more rarely so than Q.

The detailed explanation of these waves need not be discussed here. It must be remarked, however, that R does not mean that the potential which produced Q has ceased, but merely that potential in another direction has greatly predominated so as to change the direction of the flow of current. It will suffice to say that Q, R and S together represent the initial electric currents of the ventricular systole. They occupy the time during which the contraction wave, starting from the terminal branches of the bundle of His about the bases of the papillary muscles, is spreading throughout the complex muscle bundles of the ventricles, affecting successively larger masses in different parts of the heart. The R wave denotes the direction of the predominant current of this period of the heart cycle, and is the only one of the three which is as yet of any clinical interest. How early these currents occur is shown by the fact that Q is completed and R has almost reached its apex before sufficient muscle is affected to produce the beginning of the first heart-sound.[2]

At the end of S the contraction has spread so as to involve the whole of the ventricular muscle, and at this point the various potentials approximately neutralize each other. The galvanometer string, finding little or no current coming to it, remains undeflected. After a time the potential in the right ventricular or basal region begins to predominate and a flow of current toward the opposite part of the heart ensues. This current, gradually increasing, produces the characteristic slow rise of the T wave. It may be due to a decrease of the potential produced in the apical or left ventricular region because of a beginning relaxation of the muscle there, but on this point there is no agreement.

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[2] Fahr: Simultaneous Records of Heart-Sounds and Electrocardiogram, Heart, 1913, iv, 147.

The T wave is usually from 3 to 5 mm. high in one of the leads, and is usually directed upward in all three, though smallest in Lead III. In this lead it is sometimes directed downward in cases which are undoubtedly normal. The T wave returns to the base line more sharply than it left it, and the cause of this is the sudden relaxation of the ventricular fibers at the end of systole. The second heart sound[2] and the fall of intraventricular pressure[3] come directly at the end of T. The line of the record is now again at zero, but this time because of the absence of any current within the heart, in direct contrast to the period at the end of S, when a similar result was due to a balance of opposing potentials.[4]

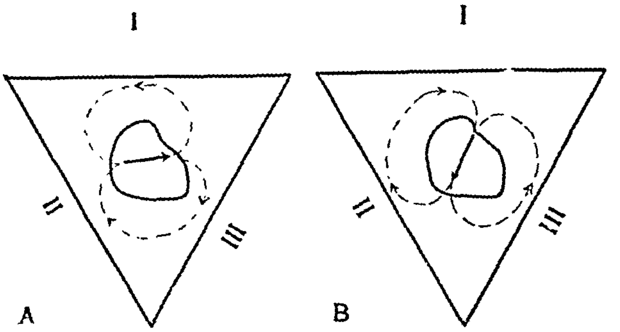

Fig. 3.—The triangle and heart of Figure 1 are readily recognized.

Before considering records from abnormal cases we must understand certain facts in connection with the normal record. Let us see what relation the direction and size of the waves bears to the direction and amount of the current within the heart. Why is the direction of some waves upward and of others downward? Why are corresponding waves of different heights in different leads?[5]

### DIRECTION OF A WAVE

The direction of a wave in a given lead depends on the direction of the flow of current within the heart at that instant, for it is this current in the heart which, spreading out through the tissues, is led off from the extremities to the galvanometer. Suppose a current within the heart flowing in the direction of the arrow *x-y* in Figure 1. It would spread out through the tissues as shown by the dotted curved arrows. This current in the tissues is led off to the galvanometer from the extremities, and is seen to flow in each lead from the apical toward the basal extremity, therefore causing an upward deflection in each lead. If the heart's current should flow in an exactly opposite direction, the current in the tissues would be reversed, and, since the current through the galvanometer would flow toward the apical extremity in each lead, the movement in the record would be downward in each lead.

A current flowing at right angles to the line of a lead would flow equally toward each extremity of that lead so that there would be no flow through the galvanometer and no deflection in that lead. The other leads would of course show a deflection.

Certain directions of current will produce deflections in opposite directions in different leads. Suppose a current flowing as represented by the arrow in Figure 3*A*. Here the current in the tissues, as the dotted arrows indicate, would flow toward the basal extremity in Leads I and II, but toward the apical extremity in Lead III. Leads I and II would therefore show an upward deflection, Lead III a downward deflection. A current in the direction of the arrow in Figure 3*B* would be associated with a flow through the galvanometer toward the apical extremity in Lead I, but toward the basal extremity in Leads II and III. Lead I is therefore downward, Leads II and III upward. If the direction in Figure 3*A* were reversed, Leads I and II would be downward, Lead III upward. The result of a current contrary to that in Figure 3*B* would be upward in Lead I and downward in Leads II and III.

### SIZE OF THE DEFLECTION

The size of the deflection is dependent on the amount of current produced within the heart. This actual current is modified in each lead by the relation of the direction of the flow within the heart to the direction of the line of the lead. The variation in the leads can be plainly seen in Figure 2, in which the heights of corresponding peaks in the three leads, though dependent on the same current within the heart, are yet quite different.

This is explained by the diagram in Figure 1. The current whose direction is that of *x-y* is represented quantitatively by the length of this arrow. The amount of current recorded in each lead may be measured by projecting the arrow vertically on the line of the direction of the lead. The recorded value along Lead I will be that of $y_1$-$x_1$, the value along Lead II will be $y_2$-$x_2$. the value along Lead III will be $y_3$-$x_3$. It is seen that the percentage of the value of *x-y* which could be recorded in any one lead would increase to a maximum as the direction of the heart's current became parallel to the line of that lead, and decrease to zero as the direction became perpendicular to the lead. In one of

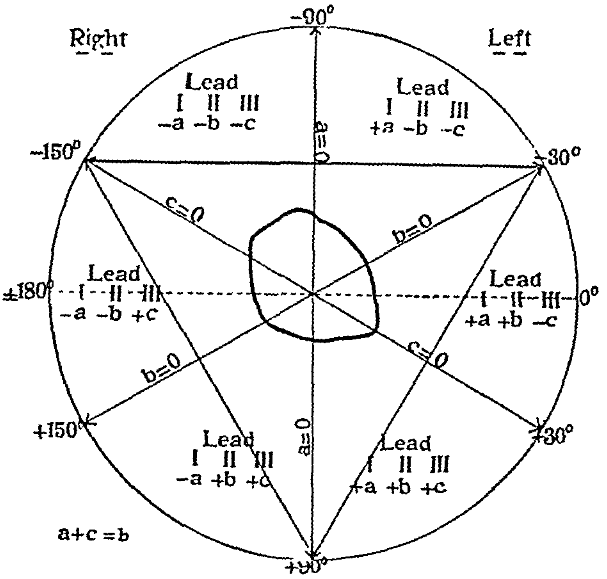

Fig. 4.—*a*, *b*, and *c* represent the numerical value of the deflection caused by an action current, in Leads I, II and III, respectively; $b = a + c$ and will be directed upward or downward according as the larger of *a* and *c* is directed; + before the letter signifies an upward deflection; — signifies a downward deflection.

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[3] Kahn: Beiträge zur Kenntniss des Elektrokardiogrammes, Arch. f. d. ges. Physiol., 1909, cxxvi, 197.

[4] A small prolonged rise in the base line during early diastole, called U, will not be discussed, as its origin is obscure and its clinical significance unknown.

[5] For a detailed discussion of the relation of the current in the heart to the current obtained in the leads, see: Einthoven: The Human Electrocardiogram, Lancet, London, 1912, i, 853. Einthoven, Fahr and de Waart: Ueber die Richtung und die manifeste Grösse der Potentialschwankungen, etc., Arch. f. d. ges. Physiol., 1913, cl, 275.

the leads, however, no matter what the current's direction, there would be recorded at least 87 per cent. of the maximum value. For clinical purposes it is scarcely necessary to ascertain this maximum exactly, but the relation of the values in the three leads is of considerable importance in ascertaining the direction of the current within the heart, as will be explained more fully later.

These facts are capable of mathematical demonstration. They have been most clearly and ably brought forward quite lately by Einthoven and have as a corollary another most important fact:

Value in Lead I + value in Lead III = value in Lead II, when the values are expressed in millimeters of height or, with the usual standardization, in tenths of a millivolt. This also can be proved mathematically and is very useful at times in determining which peak in a given lead corresponds with peaks in the other two which are evidently analogous.[6]

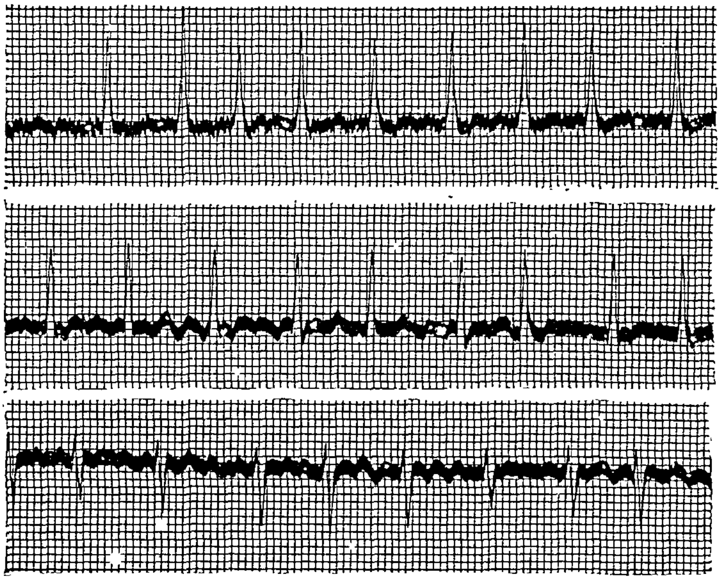

Fig. 5.—Auricular fibrillation: from a patient with chronic interstitial nephritis, arteriosclerosis, chronic myocarditis and hypertrophy of the left side of the heart.

Figure 4 is a diagram to enable us to find the direction within the body of the current causing a certain deflection from its relative direction and size in the three leads.[7]

Within the auricles or ventricles an action current may conceivably flow at any instant in any direction whatsoever. Einthoven points out that the usual leads obtain only those currents which flow in the plane of the three leading-off points, a plane with vertically and laterally directed axes. Any current flowing in a plane at an angle to this is represented in the plane of the leads by projection on it, just as the current is represented in each lead by its projection on the line of the direction of that lead (Fig. 1). If the heart be projected on this plane of the leads, then the direction of any current may be represented by that of a line which will radiate from the central point of the heart. There are accordingly 360 degrees of possible variation, as represented in Figure 4. Let us divide the circle by a horizontal line calling the 180 degrees above the horizontal negative, those below it positive. Zero (0°) lies to the patient's left and 180° to the patient's right, so that + 30° lies to the left and downward, — 150° to the right and upward. It is seen that these figures express the degrees of deviation from the horizontal to the patient's left. This deviation is called by Einthoven the angle $\alpha$.

This circle divides itself into six sectors of 60 degrees each. The sector between + 30° and + 90° may be called the normal sector. Currents whose angle lies within this sector give upward deflections in all three leads. Currents in the first sector to the patient's left, that between + 30° and — 30°, will give an upward deflection in Leads I and II, but downward in Lead III. The current of Figure 3*A* lies within this sector. In the first sector to the right of the normal, where we find the current of Figure 3*B*, the deflections are downward in Lead I, and upward in Leads II and III.

In the second sectors to the left and right, Lead II shows a downward deflection as well as the lead which was downward in the first sector.

In the third sector to the left or right, that is the sector opposite to the normal, we find all the deflections downward.

At the border of each sector, the lead which is changing from an upward to a downward deflection will show no deflection at all — its value will be zero — for at this point the direction of the current will be perpendicular to the line of the lead. On account of the formula Lead I + Lead III = Lead II, the values in the other leads will be found to be equal at this angle, though the waves may be oppositely directed. As the angle varies to one side or the other of this perpendicular, the deflection will vary from the zero the more the angle varies, and will be upward or downward, depending on whether it is led off from apical toward basal extremity or vice versa.

If the angle lies at the center of a sector, the direction of the current will be parallel to that of one of the leads. In this lead we shall find the maximum value of that current which could be recorded, and according to the formula, the values in the other two leads will be found to be equal, and exactly half of the maximum, though here again they may have opposite signs.

The waves P, R and T of the normal electrocardiogram must be caused by currents having a direction between + 30° and + 90°, since their deflections are upward in the three leads. Q and S must have an angle between — 90° and — 150°, since their deflections are all downward. If the angle of these currents approaches the border of the sector, the size of the deflection in Lead I or Lead III will be small, and, as has been noted, PIII and TIII may even be directed downward, showing that their angle may lie above + 30°.

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[6] It is sometimes difficult to apply this rule owing to the fact that the apex of a wave does not always occur in all three leads at the same identical phase or instant of the heart's contraction. If this difference is marked it may make the application of the formula impossible with a quickly changing current as in the Q, R, and S waves, unless we ascertain some fixed point in the cardiac cycle from which to measure like intervals of time in the different leads. This could be done by taking a simultaneous record of the heart-sounds.

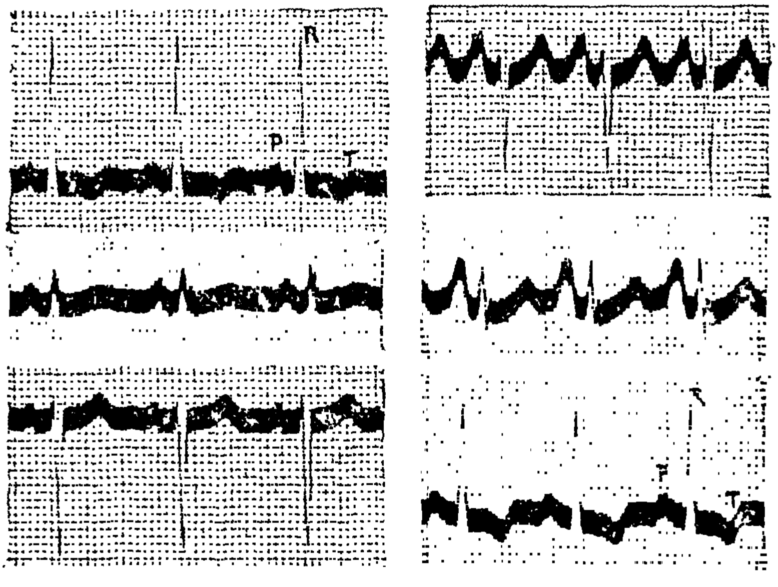
[7] Einthoven has discussed the mathematics of this very fully and has published in Archiv für die gesammte Physiologie des Menschen und der Thiere, 1913, cl, 275, tables for determining from exact measurements of a given wave the exact angle of the current producing it. If Figure 4 is borne in mind it will suffice for all ordinary clinical uses.

### ABNORMAL VARIATIONS IN FORM

Let us now consider the variations in the form of the waves to which we have been able to attach a certain significance. These variations are due to changes in the mass, in the structure or in the function of the heart-muscle, and the information which they afford can be obtained in no way so surely as by electrocardiographic records.

Nothing will be said of the identification of cardiac arhythmia, except in so far as it is accompanied by changes in the form of the waves of the electrocardiogram. This field has been most ably covered by others.[8] The electrocardiograph makes exceedingly easy the diagnosis of auricular and ventricular extrasystoles, of the tachycardias, of auricular fibrillation and of sinus irregularities, since the waves produced by the auricles and by the ventricles have a characteristic and easily recognized form which greatly facilitates their timing.

Increase in the maximum value of the P wave is considered to indicate auricular hypertrophy, and necropsy records have confirmed this with much consistency. When the angle of P is normal as in Figure 6*B*, this increase is best seen in Lead II. There has been no adequate explanation of the small notches which at times occur in this wave, more frequently perhaps in the cases of mitral stenosis, but the P wave may take on a quite irregular form when the contraction starts within the auricle at a place other than the normal point of origin. It does this in the case of premature auricular contractions. Its anomalous origin and passage throughout the auricular muscle results in an anomalous direction and succession of the electric currents so that the P wave may be smaller or larger than usual, may have two peaks in the same or opposite directions, etc. Should a premature contraction start in the sinus node, the form of the P wave would be the usual one for that person, since the contraction, starting in the usual place, will spread in the usual direction and be accompanied by the usual electric currents.[7]



A B

Fig. 6.—*A*, from a patient with chronic interstitial nephritis and hypertrophy of the left side of the heart. *B*, from a patient with mitral stenosis and insufficiency and hypertrophy of the right side of the heart.

In auricular fibrillation the P wave is absent, as seen in Figure 5, but there is found in all three leads, usually best in Lead III, a series of rapid undulations of the line of the record. The form of a single undulation suggests the P wave at times, but the amplitude and rate are continually varying. The currents producing these movements are considered to arise from the muscle bundles of the auricle contracting incoordinately.

The Q, R and S waves, though multifarious in their normal variations in form, are usually completed within from 0.08 to 0.09 second. At times this group occupies even 0.16 second, and these cases are those showing myocardial impairment. It may be supposed that conduction is delayed within the heart muscle so that the contraction wave spreads more slowly through the ventricular mass, taking a greater time to involve the whole of it.

The R wave is subject to marked variations in pathologic cases. Possibly the most common one, seen in Figure 6 *A*, is a downward direction in Lead III, associated with a wave of greater amplitude in Lead I than in Lead II. This direction of the three leads has been shown to be due to a current within the heart whose angle is between + 30° and — 30°. Such a direction of the R wave is associated with hypertrophy of the left ventricle.

Since the ventricular contraction begins in or about the papillary muscles, and therefore at about the center of the heart, the predominant current at this time, that producing the R wave, may flow normally in a direction between + 30° and + 90°, because in that direction from the papillary muscles there is a greater mass of fibers not yet contracting, and therefore electronegative to the contracting fibers. This direction is represented in Figure 1 by the arrow *x-y*, and because its angle lies between + 30° and + 90°, the R wave is normally directed upward in all three leads. When the left ventricle increases in mass by hypertrophy, there is a change in the relation of the greatest muscle mass to the fibers at the center which start the contraction. This may deflect the current toward the increased mass, and may be the reason that the angle of R is rotated to the left and upward as shown by the arrow in Figure 3 *A*. The angle of R here lies above + 30°, and $R_{III}$ is downwardly directed.

Hypertrophy of the right ventricle may in a similar way affect the direction of the current of the R wave, leading to the change which is seen in Figure 6 *B*. The increase in mass here lies to the right, so that the current would be deflected to the right as shown by the arrow in Figure 3 *B*. The angle of R would lie to the right of + 90°, so that $R_I$ would be directed downward. If both right and left ventricles are hypertrophied, the electrical curve would be expected to take the form corresponding to the hypertrophy which is predominant, and it is found to do so. Very markedly predominant left hypertrophy may result in the angle of R lying between — 30° and — 90°, so that $R_I$ will be directed upward and $R_{II}$ and $R_{III}$ downward, but I have never seen an angle to the right of + 150° caused by hypertrophy of the right ventricle except in hearts with a congenital lesion.

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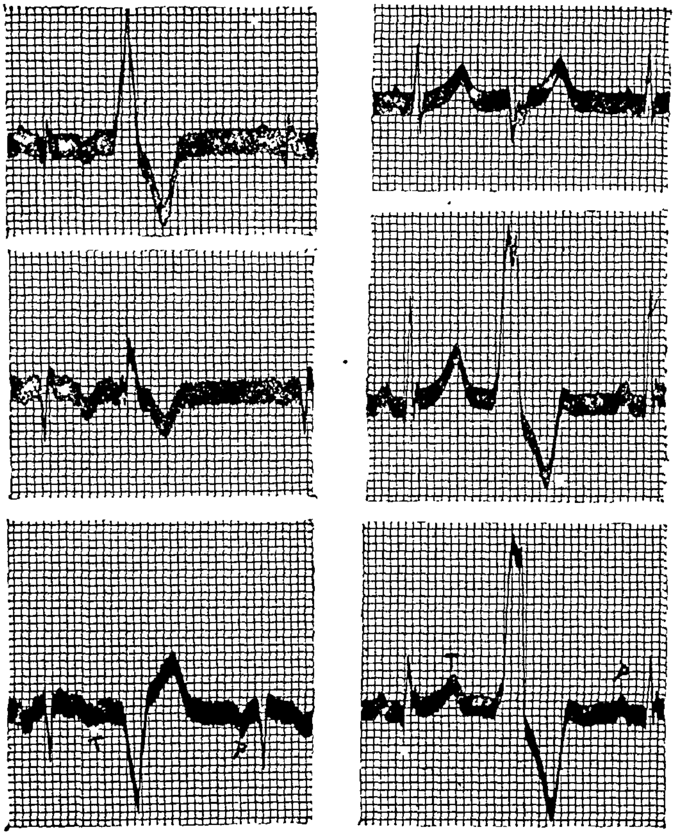
[8] Lewis: Mechanism of the Heart-Beat, London, 1911. James and Williams: See Footnote 1.

The amount of the current producing the R wave seems to bear some relation to the strength of the ventricular contraction, so that in weakly contracting dilated hearts the maximum value of R is small, while it is large in hearts contracting strongly. When the heart is dilated, the angle of the R wave is unchanged, for here the muscle masses are not changed in their relative disposition.

The T wave is found to have a small maximum value in hearts with myocardial disease, showing that in these cases the current producing it is for some reason small. We cannot at present say what is the cause of variations in the angle of the current causing the T wave, but this wave is not found directed downward in Lead I or Lead II in records from normal hearts.



A B

Fig. 7.—*A*, premature ventricular contractions originating in the right ventricle; the complexes of the normal contractions are of normal form; from a patient complaining of frequent attacks of palpitation but with no valvular lesion. *B*, premature ventricular contractions originating in the left ventricle; the complexes of the normal contractions indicate left hypertrophy; this case was clinically similar to that in Figure 7 *A*; cardiac dulness, though, was enlarged to the left.

The factors already mentioned affect in various ways the individual peaks of the electrocardiogram, but there are others which may change the ventricular complex as a whole. A most striking change is brought about by the premature contraction of the ventricles, as shown in Figure 7. In this case the ventricular contraction is not caused by the usual impulse along both branches of the bundle of His, but starts in some small part of the ventricular muscle and spreads from there throughout the whole mass. Its origin is ectopic, a term which we owe in this usage to Lewis. Whether the impulse originates in the ventricular muscle itself or in some of the terminal arborizations of the bundle of His cannot be determined, but the result in each case is similar in that the contraction results from an impulse affecting only a small area of muscle in one chamber instead of a large area in each chamber. The resultant flow of current is quite different from that during a normal ventricular contraction, and is quite characteristic. The record shows two large movements in opposite directions from the zero level, the first being usually the larger and having a unique form, the second bearing a general resemblance to a T wave. The first limb of these complexes is of greater excursion than the R wave of the individual, possibly because the action current producing it, not starting simultaneously in the two ventricles, is not neutralized to any great extent by potentials in an opposing direction. This deflection, moreover, remains away from the base line for a longer time than the combined duration of Q, R and S. When it finally does reach the base line, the second limb of the complex follows, and this is usually in a direction opposite to the first. The second limb is larger than the T wave of the individual, and the reason is possibly analogous to that producing the great height of the first limb.

It is maintained that by analogy with animal experimentation we can refer these complexes to the region of the heart in which they originate.[9] A complex as in Figure 7 *A*, showing the first limb directed upward in Lead III, is considered to originate in the right ventricle, while one like that in Figure 7 *B* with the first limb downward in Lead III is considered to originate in the left ventricle. A study of the direction and succession of the currents producing these deflections should lead, it would seem, to a much more exact localization of the point of origin of the contraction.

At times the ventricular complex following a premature auricular contraction will vary considerably from the normal for that individual. These variant types have been termed aberrant by Lewis, and are considered by him as possibly the result of an unequal rate of conduction in the right and left branches of the bundle of His, so that the impulse reaches one ventricle at a later time than the other.[10] The type showing an increased height of the R wave in Leads II and III with perhaps a decrease in size or an inversion of T is what we might expect, by analogy with the complex of the premature ventricular beat, should the impulse reach the right ventricle slightly before the left. The type showing a decreased amplitude of $R_{II}$ and $R_{III}$ with an increase of $S_{II}$ and $S_{III}$, and of $T_{II}$ and $T_{III}$, might similarly result from the impulse reaching the left ventricle earlier. Similar complexes are found to occur in records from auricular fibrillation.

Should the impulse to one ventricle be entirely blocked, as by a lesion in one of the main branches of the bundle of His, the ventricular complex takes on a form like that of an ectopic ventricular beat depending for the direction of its limbs on the ventricle to which the impulse from the auricle is conducted.[11]

There is one more factor which can lead to a change in the waves of the electrocardiogram. It changes the direction of the heart's current within the body, but not the direction of the current within the heart itself. Anything displacing the heart upward or downward cannot carry the basal region with it, because this is relatively fixed by the attachment of the great vessels. The heart is rotated on the base as a fixed point, causing a rotation of the angle of the various peaks, which must be taken into consideration when confirming or denying a diagnosis of hypertrophy. The angle of each of the peaks deviates with the hands of a clock on descent of the apex, but in a counter-clockwise direction on ascent of the apex, so that abdominal distention by gas or fluid may by forcing the diaphragm upward produce a fictitious angle for the R wave which might be high enough on the left to be said to be the result of left hypertrophy. The respiratory movements of the diaphragm show this change of the angle by a rhythmic waxing and waning of the waves, which is best seen in the normal electrocardiogram in Lead III. In Lead III, Figure 2, the waves grow smaller with expiration and larger with inspiration. Ascent of the diaphragm makes the current more perpendicular to Lead III, so that the waves grow smaller; descent of the diaphragm makes the current more nearly parallel to this lead, so that the waves are larger. This is true whenever the angle of the current lies between + 30° and + 120°. In Lead I of Figure 2 the waves have the opposite behavior to this, because ascent of the diaphragm makes their current more nearly parallel to this lead, and descent makes it more perpendicular. This is true when the angle of the current lies between + 90° and 0°. In Figure 2 the R wave has an angle of 65°, and at this angle the respiratory variations in Lead II are the same as in Lead I.

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[9] Kahn: Ueber [illegible] künstlich ausgelöster Herzkammerschläge [illegible] )9, xxiii, 444. Lewis: Mechanism of the [illegible]

[10] Lewis: Heart, 1910, ii, 35.

[11] Eppinger and Rothberger: Ueber die Folgen der Durchschneidung der Tawaraschen Schenkel, Ztschr, f. klin. Med., 1910, xiv, 1.

When the heart is displaced laterally, as by gas or fluid in the pleura, by tumors or by fibrosis of the lungs, the base moves with the apex, the heart is not rotated, and the angle of the waves is unchanged unless the level of the diaphragm is also affected. This fact enables us to distinguish between a displaced and a hypertrophied heart. If cardiac dulness extends too far to the left or right, a normally directed R wave would be evidence against the change being due to hypertrophy.

In conclusion, I wish to emphasize the fact that we have in the electrocardiogram a new and valuable method of examining the heart action. The form of the waves can be referred to the direction and the amount of the flow of current within the heart. We have been able to correlate certain variations in the flow of this current with certain abnormalities in the function or the structure of the heart. Certain changes, as pericarditis or endocarditis, will not affect the electrocardiogram until they have existed for a long enough time to affect the function or structure of the heart muscle. Other changes, as hypertrophy, premature contractions and fibrillation, are shown more clearly and exactly by this than by the older methods, and still other changes, those resulting from myocardial disease, are shown exclusively by electrocardiographic records.

The electrocardiograph should be used in all cases in which there is any doubt as to the cardiac diagnosis, and its routine use will undoubtedly lead to an increase in our knowledge of the effect on the heart action of the various abnormal influences which arise in pathologic physiology.

I wish to express my thanks to Prof. F. S. Lee and to Dr. H. B. Williams for their interest and helpful suggestions.

156 East Sixty-First Street.

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Suggestion.—The suggestible element is a component of our natures. It never leaves us, is ever with us.—Sidis.

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# ROENTGEN RAY AS A DIAGNOSTIC MEASURE IN TUBERCULOUS LYMPHADENITIS

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MANILA

A clinical method that will be of assistance in a differential diagnosis of chronic enlargements of the cervical lymph-nodes and that, when it gives a positive finding is pathognomonic of the most frequent swelling of the neck, should undoubtedly be of service to clinicians.

The group of swellings of the neck, which in a general term may be classified as "chronic enlargement of the cervical lymph-nodes" and which comprises Hodgkin's disease or pseudoleukemia, lymphatic leukemia, lymphosarcoma, secondary carcinomatous lymph-nodes, syphilis of the cervical lymph-nodes, simple hyperplastic lymph-node inflammation and tuberculosis of the cervical lymph-nodes presents a clinical picture, which on local physical examination might describe any of the various diseases mentioned.

It remains for the clinician to arrive at a final conclusion only by a careful history and a thorough physical examination, by blood examination, especially by differential blood-counts, by serodiagnosis, as tuberculin, which may be of doubtful value, or by Wassermann reaction and by other special laboratory methods such as removal of a piece of tissue for microscopic study, and as I wish to add, by roentgenoscopy.

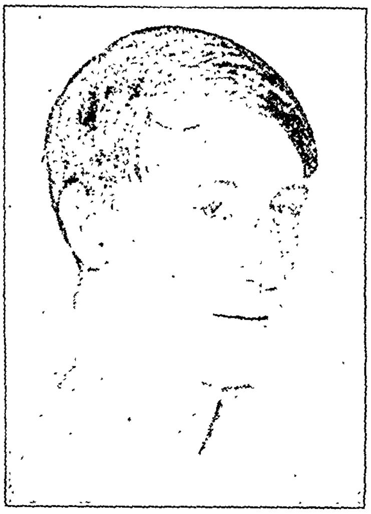

Fig. 1.—Showing cervical enlargement in the posterior, anterior, and submaxillary triangles.

Even as a diagnosis of cervical swelling secondary either to an intra-oral chancre or to a carcinoma of the breast is cleared up by a careful analysis of subjective symptoms and a routine physical examination; or as the lymphatic leukemias are so accurately diagnosed by a differential blood-count, and as primary new growths either lymphosarcoma or carcinoma are definitely determined by examination of a piece of the tissue under the microscope, so too, tuberculosis of the cervical lymph-nodes often may be definitely diagnosed by the use of the Roentgen ray. To call attention to the use of the Roentgen ray in cervical lymph-node enlargements and to lay stress on its importance as a diagnostic measure, which I think should rank in importance with the other laboratory methods before mentioned, is the object of this paper.

To illustrate this fact I wish to refer to a patient that came under my care at the Presbyterian Hospital, Chicago, while an assistant in Professor Bevan's clinic. I shall briefly consider the history, compare the Roentgen-ray pictures with the gross and microscopic pathologic findings and draw conclusions.

REPORT OF CASE

*Patient.*—A young man aged 16, American by birth, complained of an enlargement on the right side of his neck, which he said was not painful or tender but that his chief complaint was the cosmetic effect. He denied having had any venereal diseases and his family history was good. His habits also were good, as he never used tobacco, alcohol, tea or coffee, and his bowels were regular, his appetite was good, and he slept well, but he worked thirteen hours a day.

He did not remember having had any of the diseases of childhood, but had had frequent colds and had suffered from tonsillitis when 13½ years old and later the right tonsil was removed. It was two months after this attack of tonsillitis that the patient first noticed a small hard nodule on the right side of the neck at the angle of the jaw. This gradually grew larger and then others appeared and grew larger but were never painful or tender.

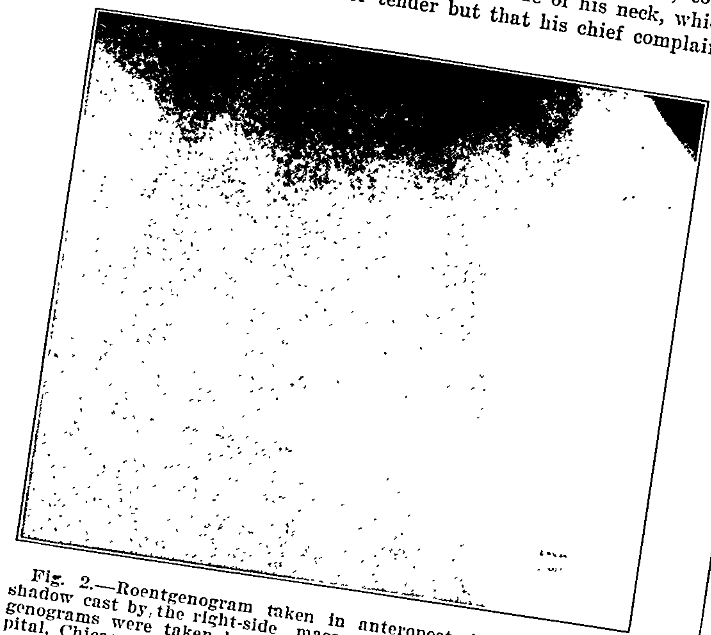

Fig. 2.—Roentgenogram taken in anteroposterior view showing shadow cast by the right-side mass. This and the following roentgenograms were taken by Dr. Hollis E. Potter, Presbyterian Hospital, Chicago.

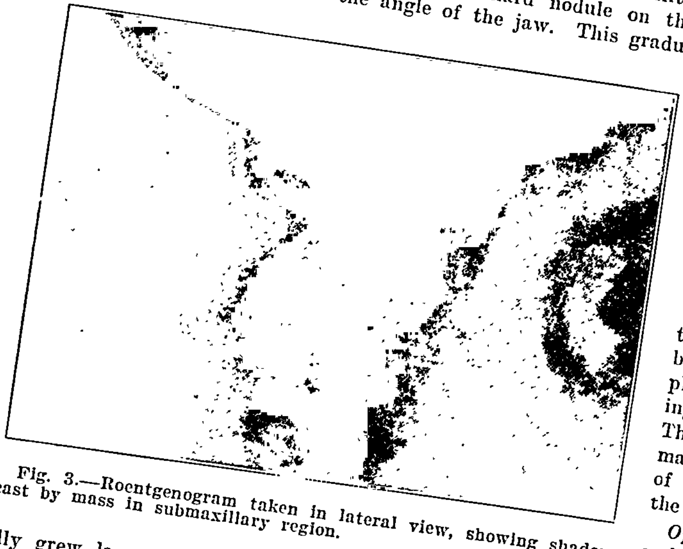

Fig. 3.—Roentgenogram taken in lateral view, showing shadow cast by mass in submaxillary region.

*Examination.*—The patient was a tall, blue-eyed, narrow-chested young man, whose lungs were resonant throughout and showed normal excursions. His heart was not enlarged but had a slight systolic mitral blow and a slight presystolic murmur, also a small but palpable thrill at apex. The findings on examination of abdomen and extremities were negative and his reflexes were normal. The right side of his neck (Fig. 1) was markedly enlarged especially in the posterior triangle but also considerably in the anterior and submaxillary triangles. The swelling was composed of small nodular masses of variable size but of uniform firm consistency. The nodules were more or less discrete. There was but slight if any lymphadenopathy on the left side of the neck. The urine analysis was negative. The blood examination showed 65 per cent. hemoglobin and 10,600 leukocytes. A differential count was as follows: small mononuclear lymphocytes 52 per cent., large mononuclear 23, indentate nuclear 3, mononuclear neutrophils 1, and polymorphonuclear neutrophils 23 per cent. Roentgenoscopy was done and two views taken; one an anteroposterior and the second a lateral. The anteroposterior view (Fig. 2) showed a shadow which extended from the level of the base of the skull and lateral to the transverse processes of the cervical vertebrae, downward to the level of and along the outer border of the first rib. The shadow was not solid, but mottled in character and varied greatly in density, some places being quite intense, while in others but faintly showing. The mottled or blotchy characteristic is quite noticeable. The lateral view (Fig. 3) shows a similar shadow in the submaxillary region and is especially dense just below the angle of the jaw and extends anteriorly along the lower border of the ramus of the mandible.

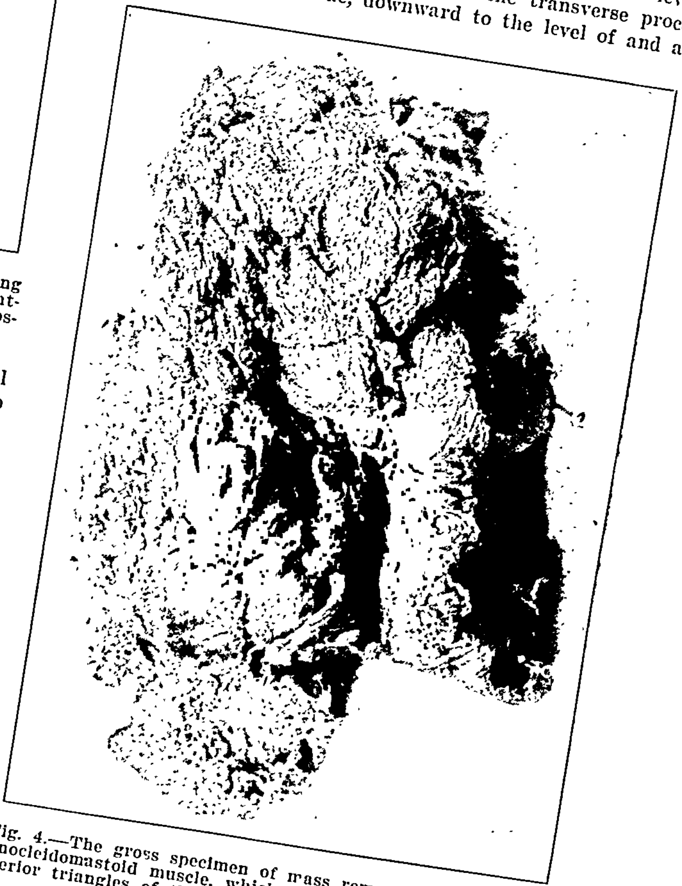

Fig. 4.—The gross specimen of mass removed from beneath the sternocleidomastoid muscle, which encroached on the anterior and posterior triangles of the neck.

*Operation.*—A diagnosis of tuberculosis of cervical lymph-nodes was made and an operation was decided on. An S-shaped incision was made: the upper curve of the S following under the ramus of the mandible and the lower curve sweeping posteriorly at the level of the posterior belly of the omohyoid muscle parallel to the clavicle and the long central portion of the S lying over the sternocleidomastoid muscle. The sternocleidomastoid muscle was divided and the mass of enlarged nodes was dissected out in two pieces. One, the larger (Fig. 4), was dissected from beneath the sternocleidomastoid muscle and occupied the anterior and posterior carotid triangles. The second (Fig. 6), or smaller mass was removed from the submaxillary triangle.

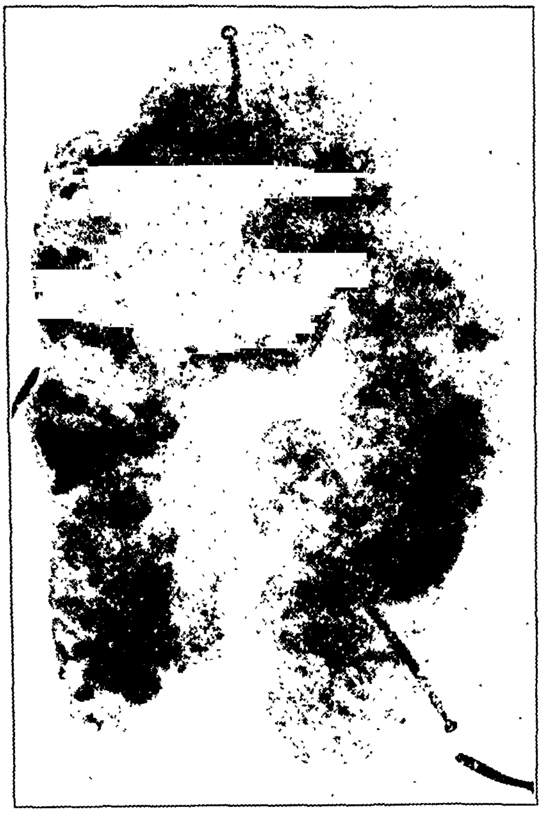

Fig. 5.—Roentgenogram of gross specimen removed from beneath the sternocleidomastoid muscle.

These two masses were again roentgenoscoped before being sectioned for pathologic examination. The larger mass cast a dense mottled or interrupted shadow (Fig. 5), but these shadows were so thickly and intimately intermingled that almost the entire specimen is outlined in shadow. The roentgenogram of the smaller mass (Fig. 7) gave a similar picture but was even more intense than the former.

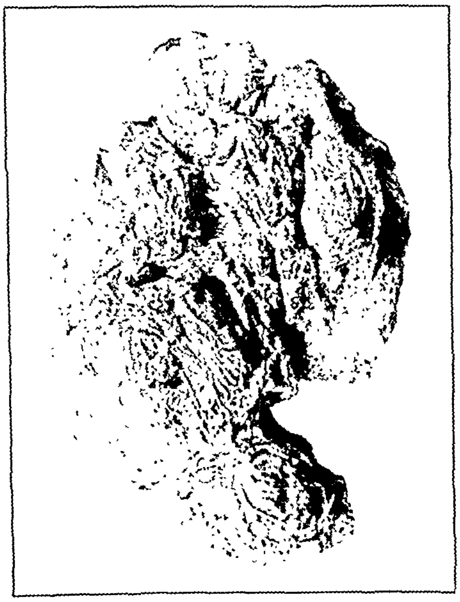

Fig. 6.—The gross specimen of mass removed from submaxillary region.

*Pathologic Examination.*—The gross specimens were then cut in cross section and pieces removed for microscopic examination. In cutting, the knife transmitted a grating, gritty sensation as it passed through the tissue. On cross section there were numerous soft whitish-yellow areas varying in size from that of a split pea to 1 inch in diameter. These areas were very soft and caseous and from them opaque whitish small particles of calcified material could be removed which, when pressed on by the knife, gave a hard gritty crumbling or breaking sensation. On microscopic examination of the tissue a typical picture of tuberculous infiltration of lymphoid tissue with areas of degeneration and calcification was diagnosed. The same was true of the smaller mass.

## CONCLUSIONS

What conclusion can we draw from these findings?

1. Roentgenoscopy is valuable in making a differential diagnosis of enlargement of the cervical lymph-nodes.

2. Tuberculosis of the cervical lymph-nodes at times can be definitely diagnosed by the Roentgen ray.

3. The only times that tuberculosis of the lymph-nodes can be definitely diagnosed by the Roentgen ray is when necrotic and caseous changes in the nodes have taken place, as calcification only follows in the wake of such changes, and it is this calcification or calcium salt deposits alone which cause the shadows with the Roentgen ray.

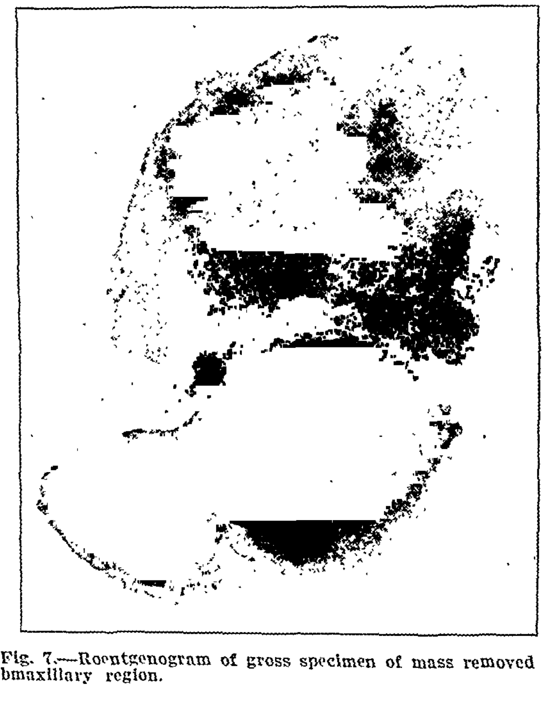

Fig. 7.—Roentgenogram of gross specimen of mass removed from submaxillary region.

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**Citrus By-Products.**—The problem of utilizing waste oranges and lemons has recently been studied by the U. S. Bureau of Chemistry with interesting results. It is found that lemons which have previously been discarded will yield from 15 to 60 pounds of citric acid per ton, so that at the prevailing market rate of the acid these culls are worth from $5 to $25 a ton. Other promising by-products are the essential oils of orange and lemon, 60 per cent. of which can be recovered by methods recently devised. As much as 6¼ pounds of essential oil have been obtained from a ton of fruit, and it is worth from $2.50 to $5 a pound. The gross maximum income per ton from the best quality of culls would approximate $45. It is understood that a number of companies are considering the manufacture of these by-products.—*Scient. Am.*

# AN EXTENSIVE CASE OF PLANTAR WARTS

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The symptomatology of verruca plantaris, a puzzling but comparatively common disease of the skin, was first described by Gorju,[1] of Paris, over half a century ago. More recently the disorder has been carefully studied by Dubreuilh[2], Montgomery[3], Bowen[4] and others, but, despite the publicity given it by these contributors, the true nature of the condition is seldom recognized even to-day.

For this reason the following example, which is one of the most extensive I have seen, may be of general interest:

L. C., single woman aged 20, student, referred to me by Dr. Jabez N. Jackson of this city, was a native of Massachusetts and a resident of Boston. Four years previously she had been troubled with a "soft corn" on the sole of her left foot, and at one time since then a college room-mate had had several growths on the bottoms of her feet similar to those from which the patient sought relief.

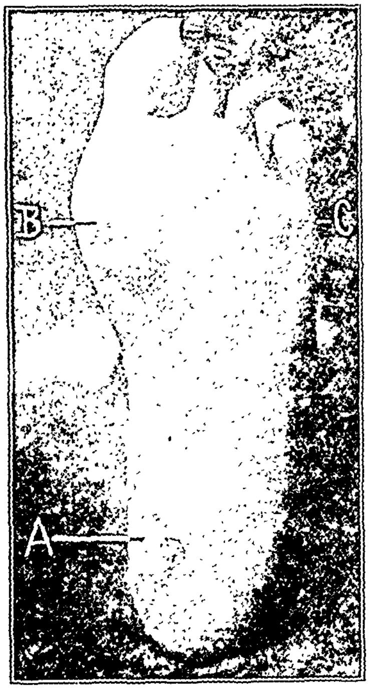

Fig. 1.—The epidermal "lid" has been removed at *A*, disclosing a group of five verrucae. The callus-like masses at *B* and *C* both contain typical plantar warts.

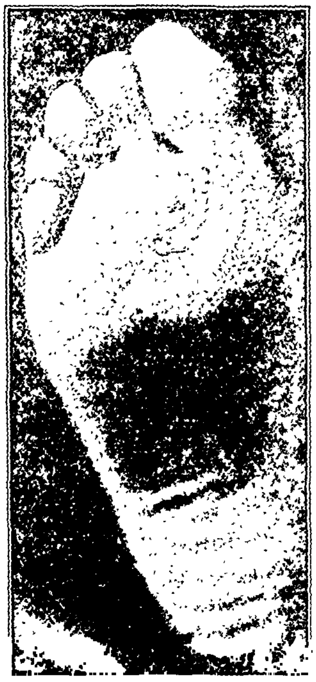

Fig. 2.—Group of plantar warts on right foot. The covering has been removed from the one in the middle.

At first glance the lesions resembled large, oval callosities. The most troublesome one was situated near the inner border of the left heel, and measured 2 by 6 cm. (Fig. 1, *A*). The overlying epidermis was smooth and translucent and a superficial examination revealed no hint of the presence of verrucae. On deep pressure, however, the tumor was found to be exceedingly tender at several different points. Just posterior to the fifth metatarsophalangeal articulation was a similar but somewhat smaller growth (Fig. 1, *C*), which also was very sensitive to pressure, and near the inner side of the ball of the foot was a third (Fig. 1, *B*). The right sole presented a single group of three lesions, arranged in a row, near the base of the great toe (Fig. 2).

The middle and oldest of the three was simply a yellowish, callus-like mass, but the other two were smaller and sharply circumscribed, with slightly elevated borders and brownish, tender centers.

When the outer layers of epidermis covering the lesions was removed by means of salicylic acid plaster, the typical, well-like cavities, partially filled with tough, stringy, opaque masses of transformed epithelium, were exposed. For laboratory study one of the lesions on the right foot and a portion of the large one on the left heel were excised with a sharp cutaneous punch. The histologic characteristics of the growths could best be studied in the specimen from the right foot (Figs. 3 and 4). The larger portion of the tumor consisted of imperfectly keratinized horny material. With the exception of a pronounced degree of papillary hypertrophy in the vicinity of the growth the corium was little changed. The border of the lesion was acanthotic, and many of the cells here and in the center of the area contained vacuoles. Both granular and horny layers were much thickened. The peculiar, small, round, highly refractile, protozoa-like, intercellular bodies which Bowen first described were present in considerable numbers. *As he has stated, they probably represent some form of nuclear degeneration or alteration.*

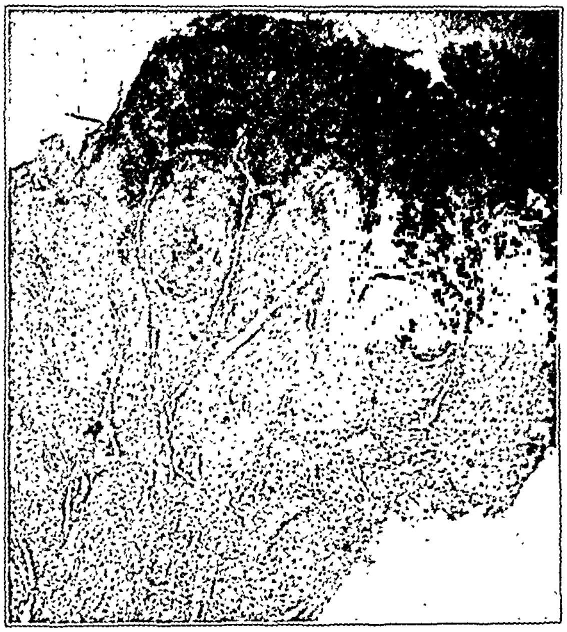

Fig. 3.—Plantar wart from right foot, showing general structure (low magnification).

Plantar warts are notoriously resistant to treatment. The therapeutic measures usually employed in combating the disease elsewhere on the body often prove ineffectual here, and recurrence occasionally takes place even after excision.

Of all the methods tried, I should place Pusey's carbon dioxid snow first in value, with fulguration second and the Roentgen rays third. Before the snow or the electric current is applied the epidermal "lids" of the little tumors should be removed by means of a 10 per cent. salicylic acid plaster. Roentgenotherapy is particularly applicable in those cases presenting numerous lesions, and often following its use the growths disappear as if by magic.

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1. Gorju: Thèse de Paris, 1857.
2. Dubreuilh: Ann. de dermat. et de syph., 1895, p. 441.
3. Montgomery, D. W.: *Papilloma of the Sole*, The Journal A. M. A., July 11, 1903, p. 100.
4. Bowen: Boston Med. and Surg. Jour., 1907, p. 781.

In the present instance the patient was exceedingly anxious to get well as quickly as possible, and all three methods were tried, the result being an apparently complete cure at the end of about four weeks.

613-614 Commerce Building.

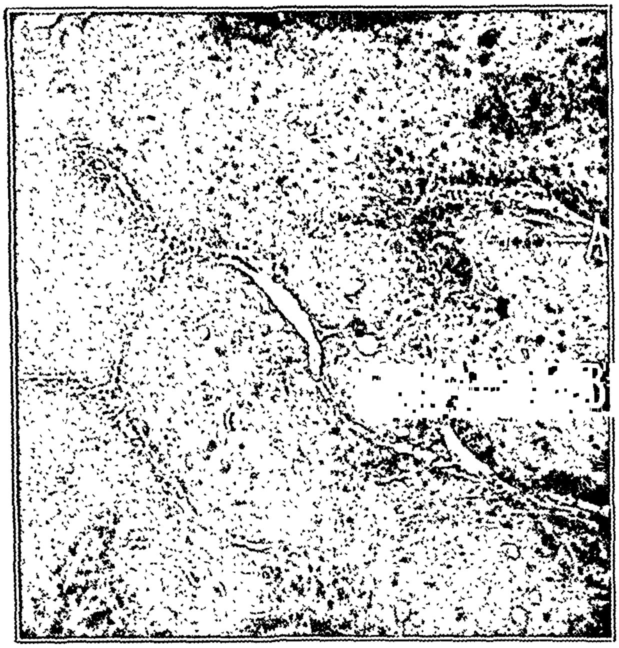

Fig. 4.—Plantar wart, showing epithelial columns, with degenerated cellular changes and "ballooning." Protozoa-like bodies at *A* and *B* (moderate magnification).

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# CANCER OF THE SPLENIC FLEXURE

P. E. TRUESDALE, M.D.
FALL RIVER, MASS.

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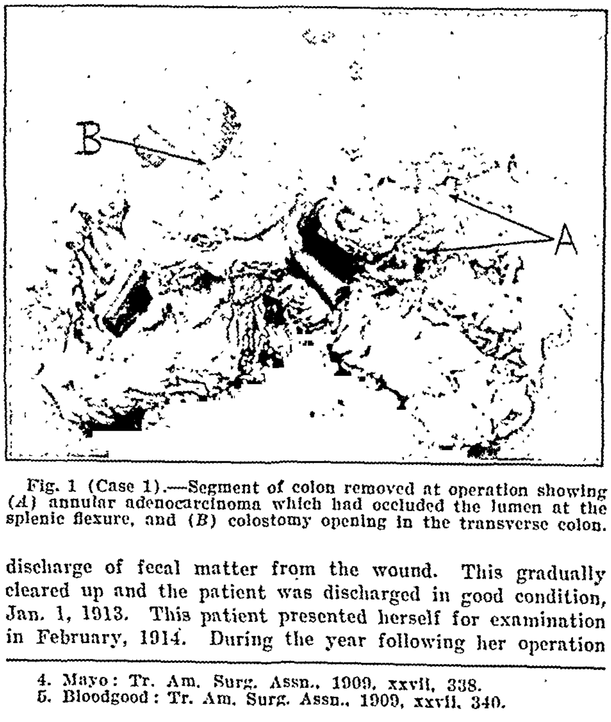

Fig. 1 (Case 1).—Segment of colon removed at operation showing (*A*) annular adenocarcinoma which had occluded the lumen at the splenic flexure, and (*B*) colostomy opening in the transverse colon.

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1. Cannon: Am. Jour. Physiol., 1901, vi, 251.
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4. Mayo: Tr. Am. Surg. Assn., 1909, xxvii, 338.
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# AN EXTENSIVE CASE OF PLANTAR WARTS

RICHARD L. SUTTON, M.D.
KANSAS CITY, MO.

The symptomatology of verruca plantaris, a puzzling but comparatively common disease of the skin, was first described by Gorju,[1] of Paris, over half a century ago. More recently the disorder has been carefully studied by Dubreuilh[2], Montgomery[3], Bowen[4] and others, but, despite the publicity given it by these contributors, the true nature of the condition is seldom recognized even to-day.

For this reason the following example, which is one of the most extensive I have seen, may be of general interest:

L. C., single woman aged 20, student, referred to me by Dr. Jabez N. Jackson of this city, was a native of Massachusetts and a resident of Boston. Four years previously she had been troubled with a "soft corn" on the sole of her left foot, and at one time since then a college room-mate had had several growths on the bottoms of her feet similar to those from which the patient sought relief.

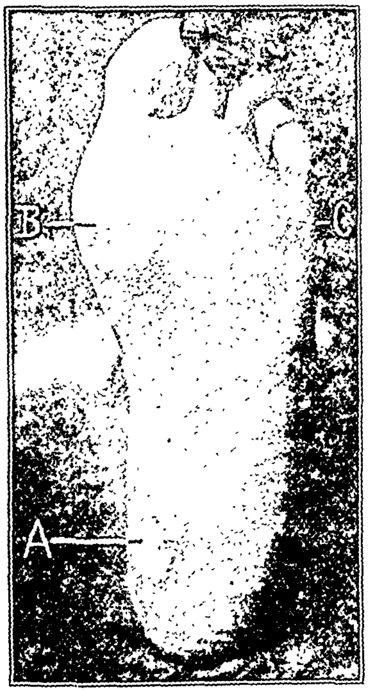

Fig. 1.—The epidermal "lid" has been removed at *A*, disclosing a group of five verrucae. The callus-like masses at *B* and *C* both contain typical plantar warts.

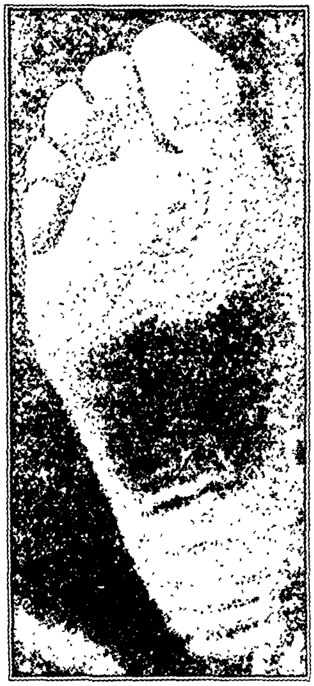

Fig. 2.—Group of plantar warts on right foot. The covering has been removed from the one in the middle.

At first glance the lesions resembled large, oval callosities. The most troublesome one was situated near the inner border of the left heel, and measured 2 by 6 cm. (Fig. 1, *A*). The overlying epidermis was smooth and translucent and a superficial examination revealed no hint of the presence of verrucae. On deep pressure, however, the tumor was found to be exceedingly tender at several different points. Just posterior to the fifth metatarsophalangeal articulation was a similar but somewhat smaller growth (Fig. 1, *C*), which also was very sensitive to pressure, and near the inner side of the ball of the foot was a third (Fig. 1, *B*). The right sole presented a single group of three lesions, arranged in a row, near the base of the great toe (Fig. 2).

The middle and oldest of the three was simply a yellowish, callus-like mass, but the other two were smaller and sharply circumscribed, with slightly elevated borders and brownish, tender centers.

When the outer layers of epidermis covering the lesions was removed by means of salicylic acid plaster, the typical, well-like cavities, partially filled with tough, stringy, opaque masses of transformed epithelium, were exposed. For laboratory study one of the lesions on the right foot and a portion of the large one on the left heel were excised with a sharp cutaneous punch. The histologic characteristics of the growths could best be studied in the specimen from the right foot (Figs. 3 and 4). The larger portion of the tumor consisted of imperfectly keratinized horny material. With the exception of a pronounced degree of papillary hypertrophy in the vicinity of the growth the corium was little changed. The border of the lesion was acanthotic, and many of the cells here and in the center of the area contained vacuoles. Both granular and horny layers were much thickened. The peculiar, small, round, highly refractile, protozoa-like, intercellular bodies which Bowen first described were present in considerable numbers. As he has stated, they probably represent some form of nuclear degeneration or alteration.

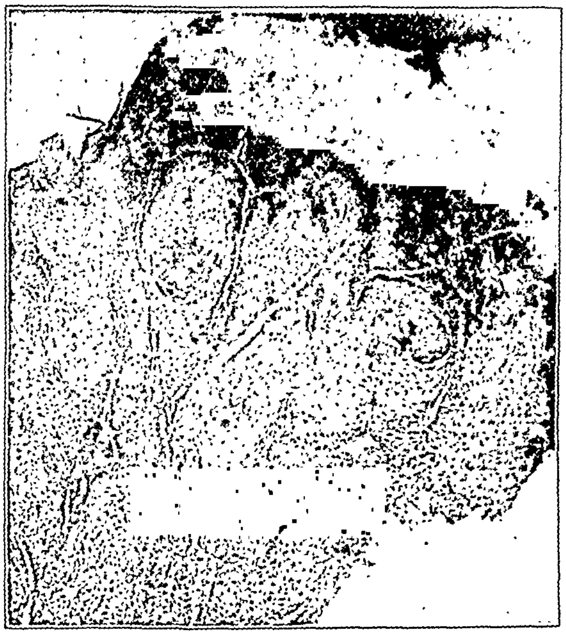

Fig. 3.—Plantar wart from right foot, showing general structure (low magnification).

Plantar warts are notoriously resistant to treatment. The therapeutic measures usually employed in combating the disease elsewhere on the body often prove ineffectual here, and recurrence occasionally takes place even after excision.

Of all the methods tried, I should place Pusey's carbon dioxid snow first in value, with fulguration second and the Roentgen rays third. Before the snow or the electric current is applied the epidermal "lids" of the little tumors should be removed by means of a 10 per cent. salicylic acid plaster. Roentgenotherapy is particularly applicable in those cases presenting numerous lesions, and often following its use the growths disappear as if by magic.

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1. Gorju: Thèse de Paris, 1857.
2. Dubreuilh: Ann. de dermat. et de syph., 1895, p. 441.
3. Montgomery, D. W.: Papilloma of the Sole, The Journal A. M. A., July 11, 1903, p. 100.
4. Bowen: Boston Med. and Surg. Jour., 1907, p. 781.

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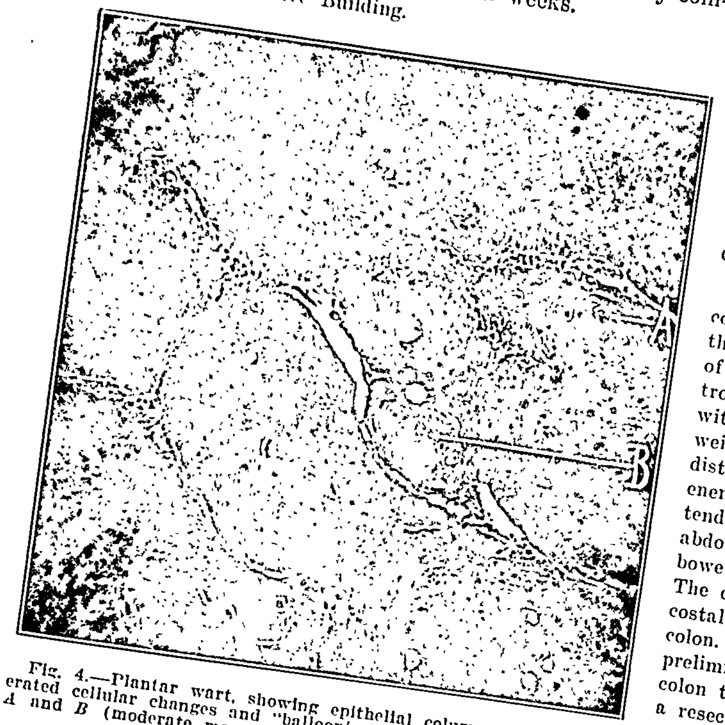

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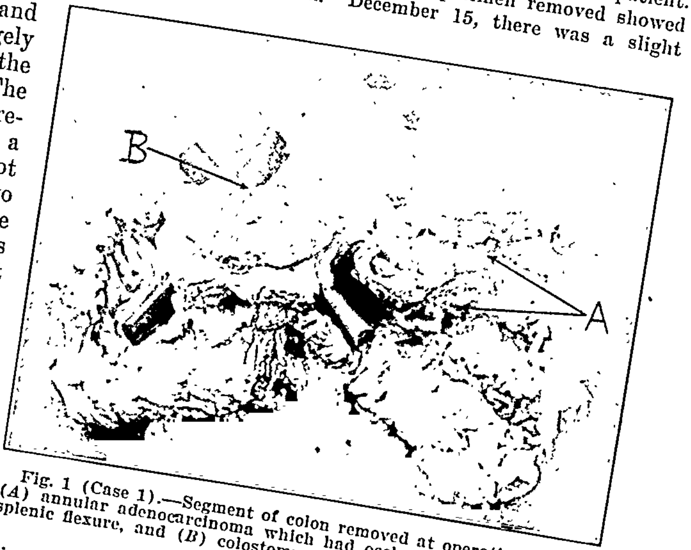

Fig. 1 (Case 1).—Segment of colon removed at operation showing (*A*) annular adenocarcinoma which had occluded the lumen at the splenic flexure, and (*B*) colostomy opening in the transverse colon.

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she had gained 20 pounds in weight and remained symptomatically well. She complained of a bloody vaginal discharge at irregular intervals during last December and January. *Vaginal examination revealed a nodular growth involving the cervix, undoubtedly a carcinoma.*

Case 2.—I. Z., aged 66, retired, born in Poland, with negative family history, had had no previous illness of importance. The chief complaint was anorexia, progressively increasing weakness and loss of weight, 45 pounds in six months. There was no pain and no vomiting, but occasional nausea. The bowels were regular and caused no trouble whatever. Bloody or stringy stools had never been noticed. Physical examination showed a well-developed man who had recently lost much in weight. The tongue was coated; the heart was irregular; a loud, blowing, systolic murmur was heard over the precordia, loudest at the apex and transmitted into the axilla. *The abdomen was level, soft and tympanitic, without* revealing tenderness or spasm. In the left upper quadrant could be felt a hard, nodular, non-tender, freely movable tumor the size of a tennis-ball. From the location of this tumor it was apparent that either the greater curvature of the stomach or the splenic flexure of the colon was involved.

Several roentgenograms were taken showing the greater curvature of the stomach to be smooth, and a normal pylorus, although there was a slight six-hour residue. In the transverse colon there was a distinct interference with the normal peristaltic movement. The bismuth appeared to collect in an irregular mass toward the splenic flexure, beyond which was a short segment in which the bismuth showed canalization. On this evidence the diagnosis of cancer of the splenic flexure was made. February 17, after a few days of preparation, the tumor was removed, including several inches of the transverse and descending colon. It was not possible to make an anastomosis of the large intestine; therefore, the ileum was divided at the ileocecal valve and an ileosigmoidostomy was done. The cecum was drawn out through a muscle-splitting incision, at which point it was subsequently opened for drainage. Pathologic examination of the specimen removed showed it to be an adenocarcinoma. The patient recovered and has gained in weight from 170 pounds, his weight on admission, to 220 pounds, his present weight, and is now apparently well.

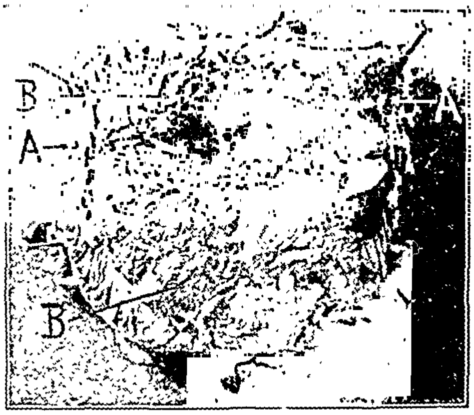

Fig. 2 (Case 2).—Specimen removed at operation showing large cauliflower tumor mass occupying the intestinal wall; *A, A*, normal mucosa; *B, B*, adenocarcinoma.

Since the large intestine has become a source of great interest to the internist, the roentgenologist and the surgeon, cases similar to those just described are worthy of record. The first patient presented that picture of malignant disease of the colon in elderly patients so frequently manifested by acute intestinal obstruction following a prolonged period of obstinate constipation. It is not unusual for such patients to continue at work until nausea and vomiting occur. In August, 1909, I was called by Dr. Briggs of Assonet to operate for acute intestinal obstruction. The patient was a stone-mason, aged 63, and had been at his work as usual on the day of the attack. An annular growth was found involving the sigmoid occluding the lumen of the intestine. On careful inquiry in similar cases one can always elicit a history of intestinal stasis for a variable period before the onset of acute symptoms.

On opening the abdomen of Patient 1, a condition was found which should always contra-indicate immediate resection. The transverse colon was distended with an abundance of solid fecal matter which had been unable to pass the carcinomatous ring. The cecum and ascending colon also contained semisolid masses of feces. Many of the earlier operations of resection were made perilous by the presence of such fecal impactions. In Madeling's list of cases, resection was carried out thirty-four times with fourteen deaths. He now recommends operating in two or three stages. When the proximal colon is filled with fecal matter, colostomy as a preliminary procedure is absolutely essential for success.

The second patient presented a somewhat striking contrast to the first. He was an ambulatory patient, in the advanced stage of cancer and seeking a diagnosis; a picture that is not so rare as it should be. The bowels were regular and he had no pain, but there was very little desire for food and a markedly progressive loss in body-weight. The tumor was palpable and though of considerable size it was found to be surrounded by a wide zone of inflammatory tissue. The colon having been very thoroughly emptied, it was deemed safe to do a resection and make the anastomosis in a single operation. The recovery of this patient would lead one to attempt the removal of very large growths in the splenic flexure. The absence of metastasis in organs adjacent or remote must remain the guide for complete extirpation of the tumor. Enlargement of the pericancerous lymph-nodes, here as elsewhere in the intestinal tube, frequently indicates only inflammatory changes, and is not to be accepted as a contra-indication to radical measures.

The cure of cancer in this region of the bowel by excision can be reasonably assured. Associated surgical principles, though not uniformly settled, are efficient and safe. The fate of one afflicted with cancer here, as in other parts of the body, must at present remain largely if not entirely in the hands of the physician who first hears his complaints.

It is in fortifying this individual or the department of medical practice which he represents that our hope for permanent cures will be realized.

## APPENDICITIS FOLLOWING INGESTION OF SHOT FOR "CUBAN ITCH"

Frederic Wade Hitchings, M.D., and H. G. Sloan, M.D.,
Cleveland

The case to be reported is of interest on account of the use of shot as a therapeutic agent, the severe lead-poisoning which followed its ingestion, and, particularly, the weight of the patient's appendix and its contents, possibly the greatest ever recorded. While the view is now generally accepted *that foreign bodies can pass from the cecum into the appendix*, it was formerly thought that this could not occur. That the old idea was erroneous is strikingly shown in this case by both the number and, relative to the lumen of the appendix, the large size of the foreign bodies found therein.

The patient, an unmarried woman, aged 21, was first seen by one of us (H.) at midnight, Jan. 3, 1914. She said that forty-eight hours previously she had had four teeth extracted under nitrous oxid anesthesia, and had had considerable subsequent hemorrhage. Twenty-four hours after the extraction she had had a chill with vomiting which persisted almost continuously until the patient was first seen. She then complained of rather severe pain all over her abdomen, occasional paroxysms of intense pain, and severe backache. The abdomen was found to be everywhere tender with slight accentuation over the appendix. Pulse 74, temperature 98.9 F.

*Previous History.*—When questioned the patient asserted that soreness over her right lower abdomen existed before December, 1912. At about that time she was treated by dilatation and curettage for dysmenorrhea, and was told that the right ovary was inflamed. Whether or not appendicitis was present then it is impossible to say. There was no further history of any inflammatory process affecting the uterus, tubes or ovaries, and, aside from the dysmenorrhea, the menstrual history was negative.

*Ingestion of Shot.*—About Christmas, 1912, in the patient's home town, there were a number of cases of an intensely itching and apparently contagious eruption which the patient said affected about one hundred people, and was called "Cuban itch." The patient said that she contracted it and that the treatment of four different physicians, who told her as many different things as to its nature (it was probably scabies), gave her no relief. A "kind" friend, similarly afflicted, advised her to take a "sure cure" in the form of bird-shot. Accordingly, beginning in March, 1913, the patient took from 15 to 20 small bird-shot every morning until she had taken about half a pound in all. The eruption disappeared, but some time later she began to have symptoms of lead-poisoning as shown by headache, colic, lead line and digestive disturbances. The history is not clear as to whether or not a severe attack of appendicitis and "peritonitis," from which she suffered and during which she was in the hospital for eight weeks, occurred at this time. At all events, in July, 1913, severe and prolonged convulsions, due to the lead-poisoning, almost caused the patient's death. They lasted for a week and recurred at intervals after she left the hospital, the last being in September, 1913. After this she had almost constant attacks of colic, nausea, vomiting, gas in the stomach and intestines, shooting pains in arms and legs, severe constipation and a "dragging" feeling in the right side. As though previous experiments were not sufficiently unpleasant to teach her a lesson, about the middle of November the patient again began to take shot for a new kind of eruption on her face. This time she chose the large shot known to the trade as "BB" size. The dose was five or six every morning until about a tablespoonful had been taken. She asserted that she passed all she took. At 8 a. m., Jan. 4, 1914, the abdominal tenderness had increased, with great soreness over the appendix, enough soreness over the gall-bladder to be very suggestive of cholecystitis, a pulse of 100, and a temperature of 99.3 F. A diagnosis of acute appendicitis with not only a possibility but considerable probability of the presence of shot in the appendix was made, but was attended with a great deal of doubt as to how much part lead colic was playing. In consultation this diagnosis was agreed on, and immediate operation advised.

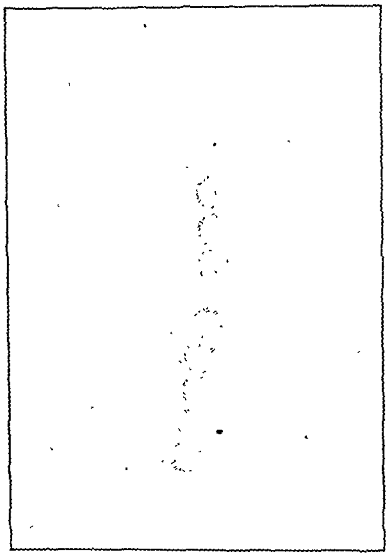

Fig. 1.—Roentgenogram of appendix containing shot.

*Operation.*—A long median incision was made (S.) through which nothing abnormal could be found except the appendix, which was inflamed, particularly at the tip, and heavy from what later were found to be eight shot. When the appendix was removed a ligature was tied around the proximal end in order to hold the shot in place. Later, through the kindness of Drs. Hill and Thomas, a roentgenogram was taken, the result being shown in Figure 1. It was then opened and photographed (Fig. 2). With its contents it weighed 125 grains (8.09 gm.).

*Postoperative History.*—Except for slight ether conjunctivitis in one eye the patient made a good recovery. She had no more abdominal pain for about three weeks. About a week after the operation she passed over forty shot by rectum. They were much eroded, and that considerable lead sulphid was present in the rectum was shown by the fact that the rectal tube was always coated black after being used. The urine at this time contained a very slight trace of albumin, and a few hyaline and finely granular casts, but was not examined for lead. January 31, a roentgenogram of the patient's abdomen revealed no more shot. February 1, she complained of darting pains in her arms and legs, stiffness in her knees, slight tendency to left wrist-drop, mild colic, and dull headache. Her hands showed a fine tremor.

*Blood Examination.*—The red corpuscles were paler than normal, showed slight poikilocytosis and occasional stippling. The blood gave the following differential count:

Corpuscles: white, 11,000; red, 3,250,000. Hemoglobin, 85 per cent. (Tallqvist). Differential leukocyte count of 200 cells (percentages):

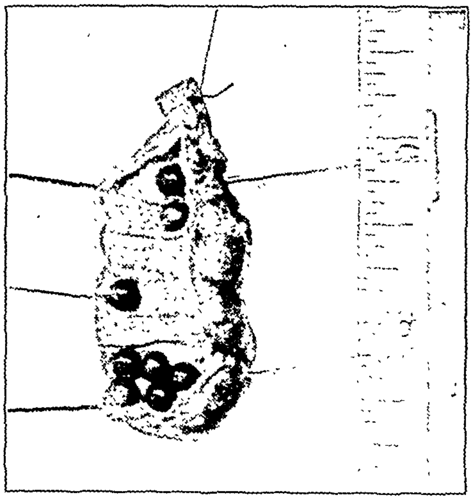

Fig. 2.—Appendix opened.

| | | |
|---|---|---|
| Polymorphonuclear leukocytes | | 72 |
| Lymphocytes | | 23 |
| Large | 18 | |
| Small | 5 | |
| Eosinophils | | 3 |
| Myelocytes | | 1 |
| Eosinophilic myelocytes | | 1 |
| Megaloblasts | | 0 |
| Normoblasts | | 0 |

The patient was put on Blaud's pills, 5 grains three times daily, saturated solution of potassium iodid, 5 minims three times daily, and an occasional dose of magnesium sulphate, and was referred to her family physician.

10406 Euclid Avenue.

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**The Lesson of Toledo.**—Two hundred cases of small-pox were discovered in Toledo during the months of December, January and February. Of the entire number of sufferers, but one had been vaccinated, and that one was vaccinated thirty years ago. The story of the Toledo epidemic is the story of hundreds of localized epidemics the world over. An epidemic of equal severity would give to New York City 7,500 cases of small-pox in three months, or 30,000 cases in a year. Such an epidemic would be a calamity to the people and would be ruinous to the city's trade.—*Bull. New York City Department Health.*

# New Instruments and Suggestions

## ETHMOID KNIFE — ALLIGATOR ETHMOID AND TURBINATE FORCEPS — AN IMPROVED SINUS PUNCH

### WITH ILLUSTRATIONS TO SHOW THE STEPS IN ENDONASAL OPERATION FOR PANSINUSITIS

W. Perry Reaves, M.D., Greensboro, N. C.

The right-angle knife (*A*, Fig. 1, 4 mm. long) cuts on the pull. It is on the curved shank *B* (2 mm. in diameter and 40 mm. long), which slips in the barrel *C* (3.5 mm. in diameter). The hook *D* (8 mm. long) is adjustable right and left.

To cut the vertical plate of the ethmoid (septal side) from its roof, the knife is passed under the middle turbinate to the posterior nares, the shank between the middle turbinate and septum, and then the shank is pushed high up in the nose, which places the knife between the posterior tip of the middle turbinate and anterior sphenoidal wall.

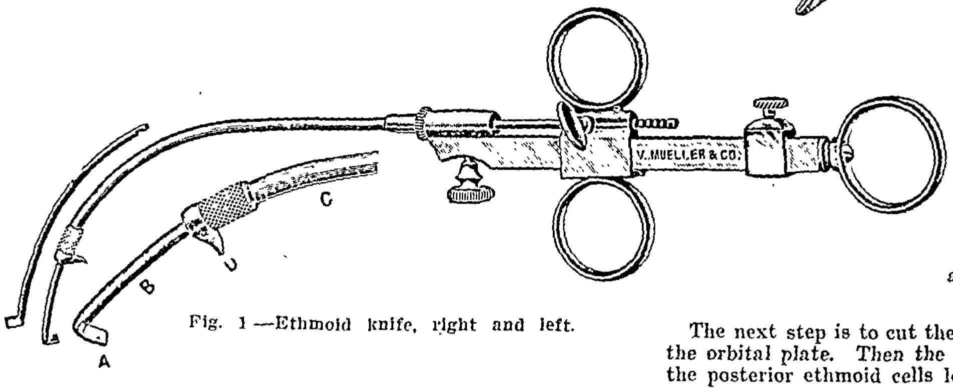

Fig. 1.—Ethmoid knife, right and left.

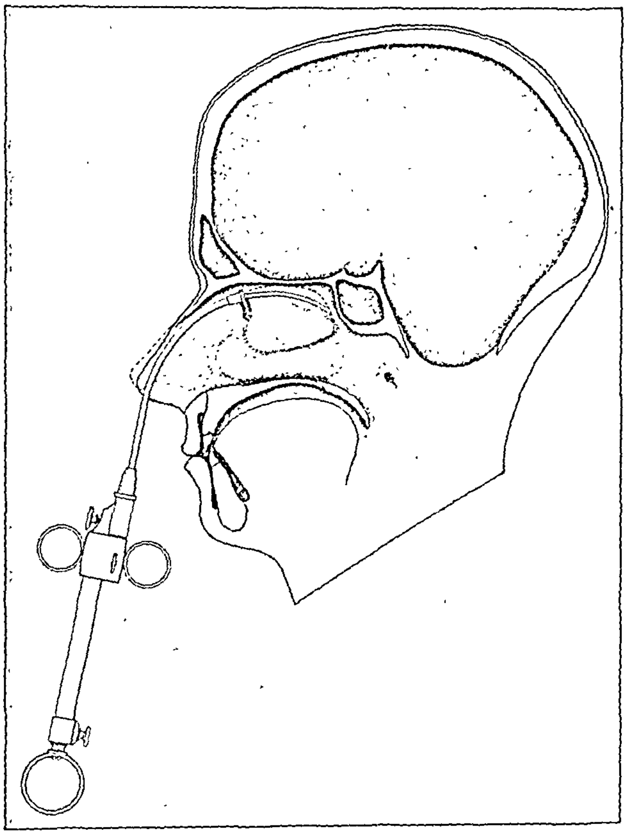

Fig. 2.—Ethmoid knife in place to cut ethmoid loose from its roof. A very slight pressure on the handle downward and backward as the knife begins to cut will make it follow the dotted lines, as the edge of the knife points a little above the shank.

*If only part of the ethmoid cells and middle turbinate is* to be removed, the hook (which should not be locked when introduced in a *close nose*, as it is easily anchored with a probe) is anchored at the junction of the anterior tip of the middle turbinate and ethmoid. If the high ethmoid cells, and the superior and middle turbinates are to be removed, the hook must be anchored higher in the anterior ethmoid cells, which have been opened with *straight forceps as shown* in Figure 2. The instrument is now in position to cut the ethmoid from its roof. Gentle pressure is made on the handle toward the patient's larynx simultaneously as the knife begins to cut, which will cause the knife's edge (which points 15 degrees above the shank) to follow the dotted lines to the roof of the nose, and also holds the barrel against the roof (the bridge) of the nose.

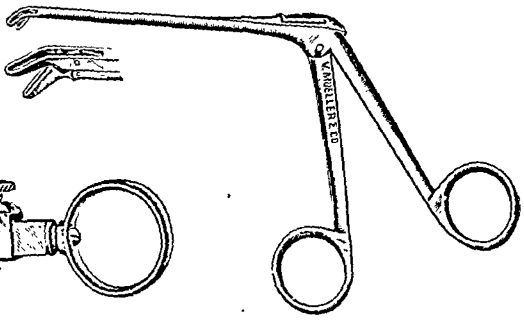

Fig. 3.—Small alligator ethmoid and turbinate forceps.

The next step is to cut the anterior ethmoid cells loose from the orbital plate. *Then the operation is completed by cutting* the posterior ethmoid cells loose with a snare.

In those cases in which the septum is deviated or the middle turbinate obstructs the nose so that the shank cannot be passed to the roof of the nose, I have had made small alligator forceps (Fig. 3), right and left, with the cutting part bent down 35 degrees from the shank, which, when introduced high into the nose, is parallel to its roof. With these punches an ethmoidectomy is just reversed, beginning at the anterior ethmoid cells. The vertical plate is cut loose from the cranial plate from before backward, and then the operation is completed with forceps and snare.

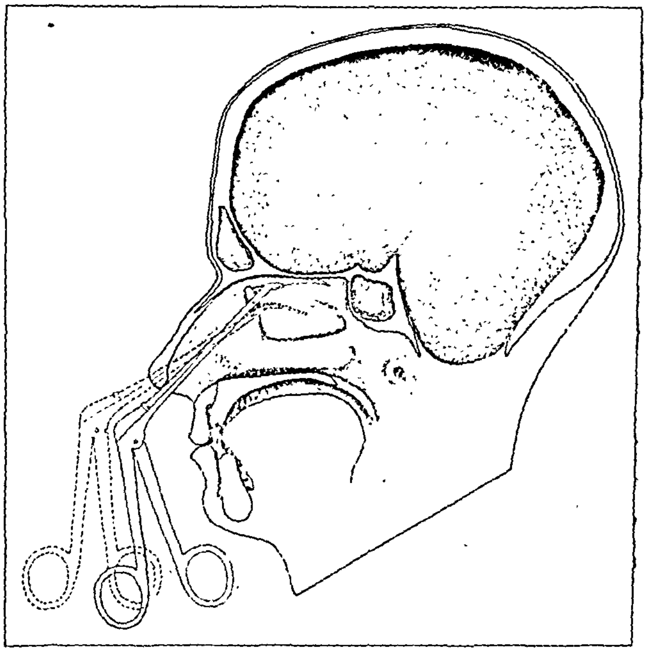

Fig. 4.—Small right alligator forceps cutting loose vertical plate of ethmoid. The dotted forceps shows position for removing middle turbinate.

The alligator forceps is also very handy for removing part or all of the middle turbinates.

Figure 5 shows ethmoidectomy shown in Figures 2 and 4 completed with superior and middle turbinates, making the maxillary, sphenoid and frontal sinus openings accessible.

The maxillary opening has b n enlarged with a sinus punch, which was described in The Journal, Dec. 16, 1911, p. 1989. The improved small 4-mm. punch is introduced into the frontal sinus to enlarge the frontal duct by nibbling away any encroaching ethmoid cells.

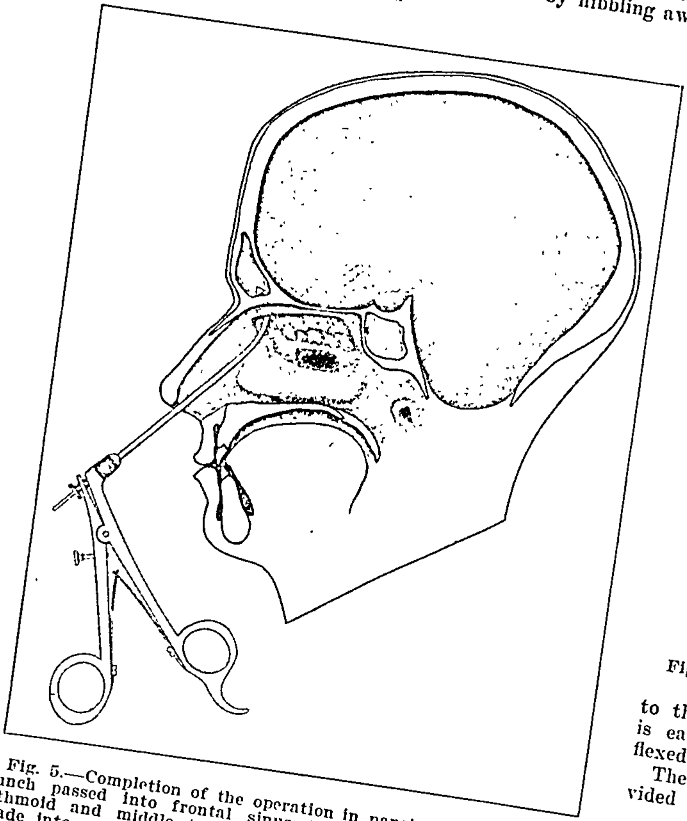

Fig. 5.—Completion of the operation in pansinusitis. The 4-mm. punch passed into frontal sinus through the nasofrontal duct. Ethmoid and middle turbinate have been removed and opening made into maxillary sinus in middle fossa.

The punch should never be introduced into the frontal sinus until the location and size of the duct are ascertained with a probe. In those cases in which the duct is found to be too small to enter with the cone tip of the punch, the duct should first be enlarged forward and laterally with Goode's rasp; then the operation is completed with the punch.

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## NEW BRACE FOR TREATMENT OF SCOLIOSIS

### PRELIMINARY REPORT

S. Kleinberg, M.D., New York
Chief, Orthopedic Department, Lebanon Hospital Dispensary; Assistant, Hospital for the Ruptured and Crippled; Assistant, Orthopedic Department, Mount Sinai Hospital Dispensary

After about two years' experience with the Abbott treatment of scoliosis in a series of seventy cases, it occurred to me that some of the difficulties in the treatment with plaster jackets might be overcome if a brace were used, and the one illustrated was devised.

The brace consists of pelvic and thoracic bands, three upright bars, and an accessory bar to guide the direction of the three canvas bands used to exert pressure. The pelvic band (Fig. 1, *a*) grips the pelvis firmly, and is reinforced by curved bars (Fig. 1, *b*) fitted accurately over the crests of the ilia. On the side of the deformity in front, it is provided with a hinge (Fig. 1, *c*) to allow for opening up of the brace during its application or removal. The thoracic band (Fig. 1, *d*) is so constructed that on the side opposite the deformity it lifts the shoulder up as high as possible, holding it forward also, while on the side of the deformity it is interrupted in its course across the axilla, allowing the shoulder to drop down, and is held here only by a buckle and strap; on the hollow side at the axilla it is provided with a hinge (Fig. 1, *e*). The three upright bars connect the pelvic and thoracic bands and are distributed as follows: one along the middle of the back and another parallel to the posterior axillary line on the hollow side. It is essential that this bar be on a plane behind the most prominent part of the deformity, usually from 3 to 6 inches distant from the surface of the chest. The third bar (Fig. 1, *f*, and 2, *f*) is placed in front. It is fixed to the pelvic band and adjusted to the thoracic band by means of a screw lock, so that it is easily detachable. This bar is bent to conform to the flexed chest.

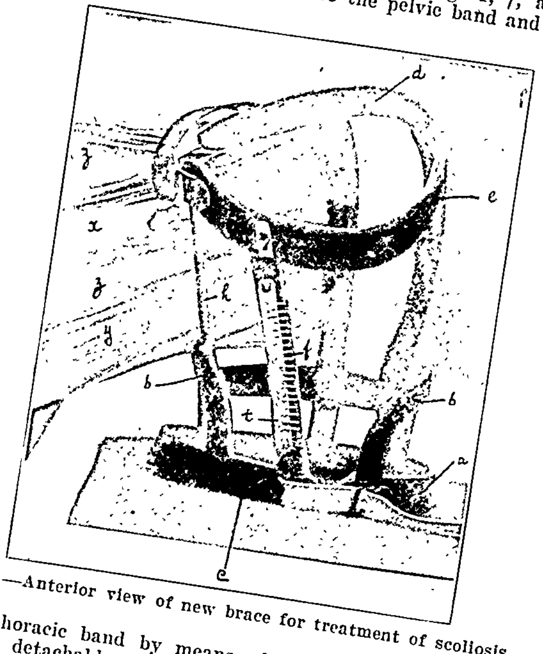


Fig. 1.—Anterior view of new brace for treatment of scoliosis.

The posterior lateral and anterior vertical bars are provided with steel teeth (Fig. 1, *t*) for the attachment of the canvas bands. The accessory bar (Figs. 1, *h*, and 2, *h*) extends upward from the pelvic band to the axilla on the side of the deformity, and serves as a guide for the canvas straps, preventing them from compressing the chest.

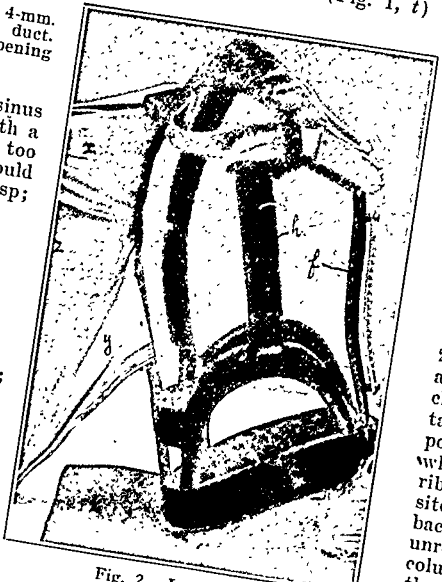


Fig. 2.—Lateral View.

To the median posterior bar are attached three canvas bands (Figs. 1 and 2, *x*, *y*, *z*). Bands *x* and *y* encircle the chest and are attached to the lateral posterior bar. Both when pulled push the ribs on the side opposite the deformity backward, tending to unrotate the spinal column; they take the place of the felt pads in the Abbott jacket. Band *y* serves also by its pressure across the abdomen to maintain flexion of the body. Band *z*, equal in width to the area of the deformity, attaches to the anterior bar, and by hugging the deformity tightly helps the action of the other bands.

To make the brace, one places the patient in an Abbott jacket, being sure to adjust the pelvis and especially the shoulders as taught by Dr. Abbott, and obtaining as much correction as possible. This jacket when sufficiently hard is cut off and filled with plaster for a torso, over which the brace is constructed. In the brace the body can be held well flexed.

I desire to emphasize the fact that I apply the method described by Dr. Abbott in all its details, only replacing the jacket by a brace. The following advantages of the brace over the jacket seem worthy of mention:

1. It is lighter.
2. The patient tolerates the pressure more readily.
3. The corrective force can be more accurately applied and more easily controlled.
4. The one brace suffices for complete correction, and the change of jackets, with their accompanying discomfort that is indispensable with Abbott jackets, is avoided.
5. The patient's chest is more easily inspected, and the effect of the corrective pressure better observed.
6. Through better exposure it is easier to keep the body clean.
7. It is easier to examine the spine with the Roentgen rays.

I believe this brace to be useful in the corrective treatment of scoliosis. It has all the advantages of an Abbott jacket and lacks many of its disadvantages. The brace is especially applicable to fixed deformities when there is a long single curve. In the cases thus far treated, nine in number, most of which were rigid S-shaped curves, improvement has been obtained in every instance, though no patient has been under treatment long enough for a final report.

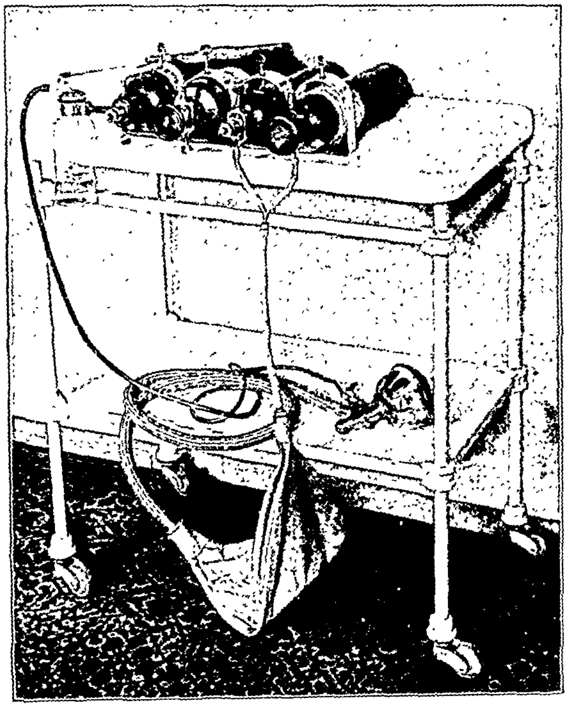
1 West Eighty-Fifth Street.

## A PORTABLE NITROUS OXID-OXYGEN APPARATUS

S. W. Moorhead, M.D., Philadelphia

Surgeon to the Outpatient Department of the Howard Hospital

The device illustrated is a portable nitrous oxid-oxygen apparatus, embodying some of the points emphasized by Dr. Flagg (The Journal, Jan. 3, 1914, p. 35). The oxygen is admitted close to the face-piece, a feature which has been found of great practical value. The flow of oxygen is estimated by watching the bubbles of gas pass through water in a Woulfe bottle. It can be entirely shut off if desired by turning a cock on the face-piece; in this case the small bag placed between the cylinder and the bottle receives the gas till the cylinder can be closed. A more rapid flow of gas from the cylinder, with or without a shutting off of the nitrous oxid, suffices to give the patient all the oxygen ever required.



Portable nitrous oxid-oxygen apparatus. The two cylinders on the right contain nitrous oxid. The oxygen passes from the cylinders on the left through the small bag and the Woulfe bottle directly to the face-piece.

The holder for the cylinders consists of a board 15 inches long fitted with four loops of webbing for their reception. A curved steel plate with set-screw is inserted in each loop to prevent rotation of the cylinders, which to give additional security rest on the points of screws driven through the baseboard. The holder can be made to accommodate two, three or four cylinders; the four-cylinder type is the most convenient, as it enables one to empty the cylinders completely without danger of running short of gas in the midst of an anesthetization.

The whole apparatus with four or five cylinders can be carried in an ordinary traveling-bag, but on account of the weight of the cylinders division into two bags is more convenient. The weight of the apparatus exclusive of cylinders is about 7 pounds.

1523 Pine Street.

## AN IMPROVED FACE MASK

W. L. Brown, M.D., and C. P. Brown, M.D., El Paso, Tex.

To avoid the frosting of eye-glasses by the breath, and to get the upper edge of the mask out of the way of the vision, we have devised the following little improvement:

The mask is made after any desired fashion. Then a piece of lead-foil ½ inch wide and about 4½ inches long is slipped into the hem in the upper edge of the mask. The lead is of sufficient weight to retain its shape when molded down over the bridge of the nose on the cheeks. We have been using four-ply lead, such as is used about the Roentgen-ray room for protecting plates. The two thicknesses of the mask should be so folded that there will be no seam above the lead, which would be inclined to fall down or stick out and obscure the vision.

The lead is removed when the masks go to the laundry and reinserted on their return.

We have also adopted the plan of having black tapes on the upper edge, indicating which side goes up, and avoiding the possibility of getting it on upside down. The upper tapes should be tied above the ears and below the occiput, the lower, which is also a puckering string, loosely back of the neck.

Face mask with lead-foil in upper hem.

## VASCULAR SUTURE IN TRANSFUSION

### A SIMPLE DEVICE TO FACILITATE THE WORK *

Bernard Francis McGrath, M.D., Rochester, Minn.

The therapeutic value of blood transfusion in severe anemia resulting from hemorrhage is generally recognized. Because of the nature of this principal indication, a device for transfusion, in order to be ideal, should be generally available.

Many apparatus have been contributed, but, whereas most of them possess some of the essential qualities, none comprehends all.

The methods of transfusion are the *indirect* and the *direct*. In recent times the indirect method has been revived and various devices for its execution have been advanced. The advantages obtained by this method, assuming the employment of the most efficient of these devices, are sureness in transmitting the blood, indication of the amount of blood transmitted and comparative ease of execution. Many successes have been reported from the use of the indirect method, but, despite this fact, it has strong opponents among physicians of extensive experience. Viewed from the physiologic point of view, the burden of proof still appears to rest on the shoulders of its advocates. The appliances employed in the direct method may be divided into two general groups, namely, one in which a tube is interposed between the vessel of the donor and that of the recipient; the other, in which the intima of the donor's vessel is applied to the intima of the recipient's vessel. In the strict physiologic sense, the latter of these two groups is the true direct method, since the blood comes in contact with no foreign substance, and, consequently, is transmitted in its normal condition.

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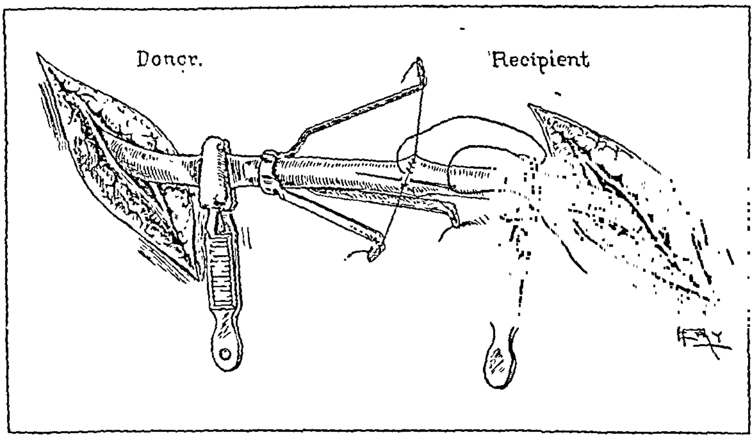
* From the Mayo Clinic.

The various apparatus of the present day for aspiration-injection, together with connecting tubes, are modifications of conceptions which date far back in the history of the subject; while all cannulas for applying intima to intima are based on Crile's conception. I have already advanced a device for the indirect method. This is a modification of the Aveling apparatus and consists of a rubber bulb drawn out into two cannula tips. This has been effective in experimentation. To avoid the possible results of retained clots, a new apparatus should be used in each transfusion. Considering the work, the cost would be negligible. Features in its favor are sureness in transmitting the blood, indication of the amount of blood transmitted, and slight demand for experience. Against it are all the arguments which prevail against the indirect method.



Instrument for vascular suture in transfusion as used in anastomosing the vessels. Particularly in transfusion, strong silk may be employed for the stays, the suture being made with the usual fine material for this purpose. Human hair is a very good substitute for the latter in case of emergency.

For the direct method I have presented a forceps-cannula. This consists of two very short cannulas which are applied to one another by means of an ordinary forceps, made suitably small and refined for the work. The principle of *cuffing* the vessels, as employed in the Soresi instrument, was adopted. Qualities in its favor are sureness in transmitting the blood, transmitting the blood in its normal condition, and comparative ease of application. Against it may be stated that it is not applicable to very small vessels, and that in case a knowledge of the amount of blood transmitted is desired, it can be acquired at present only by a calculation based on certain factors and indicated by the increase of the recipient's hemoglobin. According to my experience, however, the occasion must be rare in which a vein-to-vein transfusion cannot be accomplished with this instrument. If the veins are of small caliber, the ends may be sufficiently dilated with a forceps without detriment to the procedure.

Vascular suture for transfusion has been but limitedly adopted. The reasons are obvious. Cases are encountered, however, in which the object is best accomplished by this means, for example, when the diameter of the vessels is small. Because of this possible indication for its application, and also for the utility of vascular suture in other fields of surgery, any contribution which aims to simplify its technic has a reason for its existence.

The apparatus shown in the accompanying illustration is intended to facilitate the procedure of suturing blood-vessels in transfusion or whenever indicated.

Bearing in mind the possible difficulties, the operator should approach every case of transfusion adequately equipped to surmount any obstacle which presents itself.

## SPINAL-PUNCTURE NEEDLE

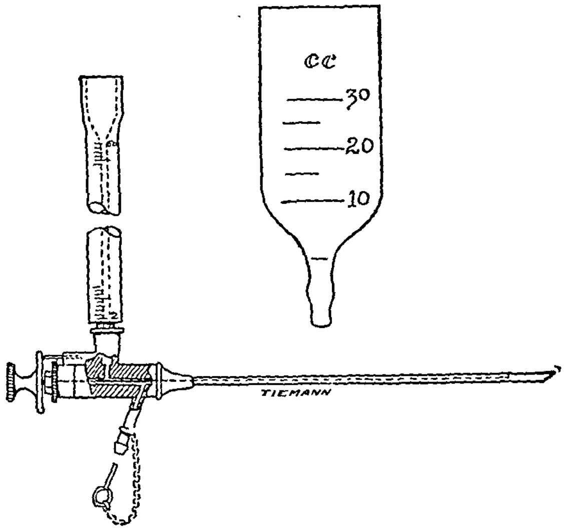
I. Strauss, M.D., New York

The purpose of a needle for the puncture of the spinal canal is threefold: (1) to measure the pressure of the spinal fluid; (2) to withdraw fluid through it for examination, and (3) to inject substances into the spinal canal.

The needles devised for this purpose, heretofore, have depended on the use of the three-way cock. Such mechanism is very apt to get out of order, and requires an undue amount of attention on the part of the operator in order that the flow of fluid may take its proper course.

For the past two months I have used a needle which I think overcomes these difficulties. It is efficient and at the same time easy to take care of. The needle possesses a stylet which is made so as to fit the barrel accurately, and is likewise so fashioned that it cannot be withdrawn during the use of the needle. It can be taken out for cleansing by unscrewing the cap at the end of the barrel. This cap also contains a small leather washer to prevent the leakage of fluid around the stylet, and is the only part of the instrument which may in time require renewal. The barrel of the needle has two openings. In one is inserted a glass manometer of the style used by Crohn in his spinal needle. Opposite to this opening and nearer the needle point, there is another opening, which is fitted with a plug, out of which fluid can be drawn and caught in a test-tube for examination. The manometer is of the same caliber as the needle, and registers in millimeters the height of the column of fluid from the needle level.

When in use the stylet is pulled out as far as possible. The fluid will then rise at once in the manometer. There will be no loss of fluid. The amount necessary to register 120 mm. is only 0.25 c.c. of fluid. Then the stylet is pushed back into the needle a short distance so that no more fluid can come out. The plug can then be withdrawn and the manometer emptied, if desired, or the fluid can be allowed to flow out immediately by merely drawing the stylet back again. When enough fluid has been obtained the stylet is pushed forward a short distance, stopping the flow at once, and the plug is inserted. If then it is desired to measure again the pressure of the fluid, all that is necessary is to pull the stylet back and the fluid will rise at once in the manometer.



Spinal-puncture needle.

A graduated retainer, holding at least 40 c.c. of fluid, is provided for the introduction of medication, such as serum, into the spinal canal. This is connected by a small rubber tube to a male obturator, which fits into the opening used for the manometer. After enough fluid has been withdrawn from the spinal canal, the manometer is removed, the retainer is attached to the instrument and the serum allowed to flow in by gravity. One important advantage of this instrument is that it can be used in removing fluid in cases of tumor cerebri, especially of the posterior fossa, without any danger, as there is no loss of fluid and the pressure can be measured without altering the intracranial pressure. In such a case, if desired, fluid for examination may be removed by adjusting the stylet in such a manner that the fluid comes out only drop by drop, and the flow can be stopped instantly.

Since devising this needle, I have found that Kausch's instrument is somewhat similar in construction, but is also complicated by stop-cocks.

116 West Fifty-Ninth Street.

# New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

The following preparations have been accepted for inclusion with the appendix to New and Nonofficial Remedies:

Antiseptic Supply Co., New York.

*Causticks (Silver Nitrate 75 per cent.)*—Wooden sticks 1½ inches long, tipped with a mixture of silver nitrate 75 per cent. and potassium nitrate 25 per cent., packed in amber glass bottles. Each stick is to be used but once.

*Caustick Applicators (Silver Nitrate 75 per cent.)*.—Wooden sticks 6½ inches long, tipped with a mixture of silver nitrate 75 per cent. and potassium nitrate 25 per cent., packed in amber glass bottles. They are intended for use in throat and gynecologic work. Each stick is to be used but once.

*Cupricsticks (Copper Sulphate 60 per cent.)*.—Wooden sticks 1½ inches long, tipped with a mixture of copper sulphate 60 per cent., alum 25 per cent. and potassium nitrate 15 per cent., packed in gelatin tubes. Each stick is to be used but once.

*Stypsticks (Alum 75 per cent.)*.—Wooden sticks 1½ inches long, tipped with a mixture of alum 75 per cent. and potassium nitrate 25 per cent., packed in gelatin tubes. Each stick is to be used but once.

**Factors Involved in Juvenile Delinquency.**—A background for misconduct is found sometimes in moral shocks, in mental struggles or conflicts about various experiences or even in knowledge which has been repressed. Hidden worries (these are not uncommon in children) react sometimes in the same way, as also does the belief that immorality rules in the social order. A definite grudge against society is to be readily perceived in some offenders, or a disgust with the world, as the basic reason for criminalism—the individual then seems to be taking the general attitude of revenge. Another most promising subject of inquiry are the thoughts and pictures which some delinquents describe as forcefully coming up and up in their minds, driving them to misconduct. The ever-recurring idea of special criminalistic acts and the formation of a definite delinquent habit of mind are also important to discover. In general this all means a serious attempt to analyze the individual's attitude toward himself, how he became an offender, and his memory of the earliest formative influences of his whole character. For practical ends in any situation where delinquents are dealt with, such study is invaluable and our scientific knowledge of criminal beginnings may thereby be greatly enriched. For this a complete record of facts, opinions and typical expressions is obviously most desirable.—W. Healy, M.D., Bull. 12, Am. Inst. Crim. Law and Criminol.

# Therapeutics

## THE TUBERCULOSIS PROBLEM

*(Concluded from page 1253)*

*Tuberculous Peritonitis.*—This condition uncomplicated with tuberculosis elsewhere must, of course, be differentiated from many abdominal conditions. If there is fluid, other causes of ascites, as inflammation of the liver, serious cardiac insufficiency and ovarian cysts must be excluded. Tuberculous peritonitis may appear in several forms: the miliary form which causes ascites, the fibrocaseous, the fibro-adhesive and that which causes tumor-masses. The range of temperature (although in chronic tuberculous peritonitis there may be no increase of temperature, and it may even be subnormal), the localized tumor-masses and fluid confined to one portion of the abdominal cavity by adhesions, will aid in the diagnosis. In tuberculous peritonitis there may be more fluid on the left side of the abdomen than on the right, as the diseased mesentery retracts and draws the bowel to the right. As frequently tuberculosis is not present in other organs, the diagnosis is often difficult, and a tuberculin test is indicated. The fluid in the abdomen in tuberculous peritonitis does not contain pus, unless there is a mixed infection, as the tubercle bacillus does not produce pus. The drawn serum very frequently does not show tubercle bacilli, but a guinea-pig inoculated with the serum will, in due time, develop tuberculosis, if that is the infection from which the patient is suffering. If the exudate found on laparotomy or withdrawn for examination is bloody, it shows the disease is active. Tuberculous peritonitis may originate from infected mesenteric glands. Much false membrane is formed, which causes many adhesions of the intestines.

A patient may apparently be very well and still suffer from tuberculous peritonitis, and the prognosis is rather favorable if such a patient is operated on. It is not advisable to operate for tuberculous peritonitis if tuberculous infiltration is already in the lungs. At times, withdrawal of fluid from the abdomen by aspiration, tonic treatment, rest and the exposure of the abdomen to the rays of the sun will cause a cure. Many sanatoriums are installing the necessary equipment for giving heliotherapy, or sun baths. The direct rays of the sun are thrown on the chest or abdomen. The electrochemical action of the Roentgen ray has also been tried, but its value has not been well proved.

If the ascites tends to recur, or remains, laparotomy should be done, and sunlight let into the abdomen. Laparotomy may cure tuberculous peritonitis when there are simply tuberculous masses or tumors, but no fluid in the abdomen. It has been thought that small doses of mercury administered for a long period, especially in the form of corrosive sublimate, was of advantage in tuberculous peritonitis.

The results of operation may be summed up about as follows: There is slight danger from the operation itself. Temporary improvement may almost always be expected. Fatal cases usually terminate in a few months after the operation; while not far from one-third of all cases seem to recover in about one to two years after the operation. Antiseptic injections or continuous drainage after operation are not indicated and are useless.

*Tuberculosis of the Genito-Urinary Tract.*—Tuberculosis of the bladder and prostate is rarely primary, and often has gonorrhea as an antecedent. Tuberculosis of the testicle is by no means infrequent. Removal of the testicle is of course advisable, and operative interference in the bladder and prostate may be indicated. A tuberculous kidney should be removed as soon as it is diagnosed provided the other kidney is normal. The general treatment is the same as in all tuberculosis.

*Tuberculosis of the Cervical Glands.*—Although this subject has already been quite largely discussed, it should be urged that while surgical removal is necessary and very frequently indicated, every gland that is needlessly removed weakens by just so much the ability of the system to protect itself against all infections. Roentgen-ray treatment, while lauded by some men, seems unsatisfactory to many clinicians. While infected or broken-down glands are being removed, the dissection should be very carefully done, lest the surrounding parts be infected with liberated germs, or if not locally infected, lest the bacilli be absorbed into the lymph circulation and cause general infection.

While a gland should not be removed merely because it is enlarged, at the same time it is a serious mistake to allow enlarged glands to cause such inflammation of the surrounding tissues as to render it necessary to remove parts of muscles, to say nothing of the danger of such chronic inflammation necessitating, during operation, injury to important blood-vessels and nerves. Glands should be removed before they cause injury to the patient or the surrounding tissues.

The tuberculin treatment of tuberculosis of the glands, especially in children, is now much in vogue, and if the tuberculin is used in carefully graded doses the results seem to be satisfactory. Caseated glands should be eradicated or curetted, however, as the tuberculin treatment will not cause resorption. Also, the exact value of the tuberculin treatment for tuberculous glands cannot be determined, as fresh air, good food, iron tonics, and medical supervision are active aids in the cure of this condition. Too large doses of tuberculin may overstimulate the diseased glands and cause general infection. Also, one does not know how many concealed diseased bronchial glands will be stimulated by the tuberculin injections; hence a very careful study of focal reaction should be made throughout the treatment. Bier's hyperemic treatment is probably inexcusable.

*Bone and Joint Tuberculosis.*—In tuberculosis of these parts of the body, according to Fiske, there may be a slight leukocytosis of not far from 12,000, while in osteomyelitis the leukocytosis is generally not far from 16,000.[2] Children who have bone tuberculosis frequently do well at sanatoriums or in hospitals especially arranged for their out-door or veranda treatment. They do especially well at the seashore, and direct sunshine makes a valuable addition to the treatment of this kind of tuberculosis.

*Tuberculous Meningitis.*—Tuberculous meningitis, sometimes called basilar meningitis, or water on the brain, may be a part of acute miliary tuberculosis, but it frequently occurs in children without other apparent tuberculosis, though careful necropsies in children dying of this disease may show signs of tuberculosis in the lungs. Tuberculous meningitis is generally a disease of childhood, occurring most frequently between the ages of 2 and 5. Measles and whooping-cough seem to be predisposing causes, simply because they irritate already infected glands, and these glands then pour out tubercle bacilli which cause a local acute infection. Tuberculous meningitis may also follow, in rare instances, a bone tuberculosis.

Enough cases are now on record to show that recovery from tuberculous meningitis is possible, so that the prognosis is not absolutely hopeless, although very dire. The little patient should be kept very quiet, and in a darkened room, and lumbar puncture should be done for relief of any symptoms of pressure, as well as for diagnostic purposes. If the child is suffering pain, codein or some form of opium should be administered, in doses found sufficient for the individual, but not large enough nor so frequently repeated as to produce coma; that is, if coma occurs it should be known that it is caused by the disease and not by the drug. The little patient should not be compelled to suffer severe pain. If food is refused, forced feeding may be advisable, but if the child is thirsty he will generally drink milk. The value of hexamethylenamin is still doubtful. It has for the last few years been thought to be a most valuable treatment in all infections of the meninges or adjacent parts, as the middle ear, etc., and in colds and sinus disturbances. Late investigations, however, show that this drug does not give up its formaldehyd radical except in such acid mediums as are found in the bladder. The drug in ordinary doses, with the kidneys intact, is harmless, however, and should be given until it is certain that it is of no value.

*Acute Miliary Tuberculosis.*—This occurs in several forms; one in which all the organs of the body are attacked, others in which only certain organs are diseased. In another form the tubercles may be larger and show degeneration. The disease is always serious, generally fatal, and clinically occurs as the meningeal form just described or as a general acute bronchopneumonia of both lungs, or as the typhoid type. In the lung form the sputum is loaded with tubercle bacilli and the diagnosis is readily made. In the typhoid form there may be no cough, and no real lung signs, although lesions may be found in the lungs on necropsy. It may be difficult at first to distinguish this form from typhoid fever, but the temperature is likely to be very high in the evening with considerable of a drop in the morning, and profuse sweatings. Such morning remissions occur early in the disease as distinguished from typhoid fever. The pain and tenderness in the abdomen, and the joint and cerebral symptoms, will soon make the diagnosis positive. Diarrhea generally does not occur with acute miliary tuberculosis; in fact, the patient is generally constipated—another symptom different from most cases of typhoid fever.

The treatment is similar to that of any acute infection with the exception that great care should be exercised to sterilize every excretion from the body.

### ARRESTED TUBERCULOSIS

A patient who has even a temporary return to health must generally go to work, and the question of vital importance is, What shall the work be? There is no light outdoor work suitable for such recovered patients; hence, unless the occupation is one that is a menace to his health, a patient should return to his previous work. The education received during his cure should have taught him how to live to keep his health. The next important rule for him to follow is to return to his physician for observation and advice at shorter or longer intervals, depending on his general condition.

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[2] Fiske: Boston Med. and Surg. Jour., 1913, clxviii, 606.

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SATURDAY, APRIL 25, 1914

## THE BEHAVIOR OF MALARIAL PARASITES

Now that the cultivation of malarial plasmodia outside of the body has finally been successfully accomplished through the technic devised by Dr. Charles C. Bass and his co-worker Dr. F. M. Johns of the Tulane School of Tropical Medicine, and the splendid results have been verified by Lavinder, Thompson, Ziemann and others,[1] it is time to turn attention to some of the lessons which the new experiences are suggesting. Bass[2] has lately offered some ideas relative to reproduction of the organisms, suggested by his observations of malarial plasmodia growing *in vitro* and from experiments made with his cultures. He believes that in the living body the plasmodia can pass from cell to cell only when one cell is in direct contact with another containing a segmenting parasite, and then only when the opening for the exit of merozoites occurs opposite the neighboring cell. The substance of malarial plasmodia is very different in consistency from that of red blood-cells, and therefore they cannot pass through the smallest capillaries so readily as can the more yielding fluid-like erythrocytes.

Because of their unyielding consistency, Bass believes that malarial parasites, after they attain a sufficient size, lodge in the capillaries of the body, especially where the blood-current is weakest, and where slight obstruction is produced by the protruding inward of nuclei of the endothelial cells. Here they remain and develop until they segment. In the meantime other red blood-cells are forced against them, and if the opening in the infected cell occurs in a favorable location, one or more merozoites pass directly into another cell. Otherwise the merozoites are discharged into the blood-stream and speedily killed. Whenever a segmented parasite has become sufficiently broken up it can pass on through the capillary into the circulation, where the remaining merozoites are almost instantly destroyed. The débris and pigment are phagocytized by the mononuclear cells of the blood and the endothelial cells of the vessels, and finally are either destroyed or stored in the spleen and other tissues of the body. A very heavy infection may result in plugging the brain capillaries to such an extent as to produce coma and "cerebral malaria."

Bass offers the suggestion, further, that quinin has no direct destructive effect on malarial plasmodia, the red blood-cell harboring the parasite possibly being rendered more permeable to the all-sufficient destructive influence of the serum through the undoubted detrimental influence of the alkaloid. If this be true, quinin would affect only the parasites in the circulation and not those lodged in the capillaries, which would not be reached by the drug until they segment. The effect of quinin would accordingly be defeated by any measure, either dietary or physical, whereby the permeability of the red corpuscles is likely to be decreased. This must, however, be looked on as purely hypothetical.

The size of the capillaries and the blood-pressure have an important influence on the stage at which malarial plasmodia recede from the peripheral circulation. They may be important factors in the production of "cerebral blocking." A growing appreciation of the possibilities involved may greatly facilitate the treatment of a disease in which the essential etiologic agent is at length under some degree of intelligent experimental control.

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[1] Bass, C. C.: A New Conception of Immunity: Its Application to the Cultivation of Protozoa and Bacteria from the Blood and to Therapeutic Measures, The Journal A. M. A., Nov. 4, 1911, p. 1534. Bass, C. C., and Johns, F. M.: The Cultivation of Malarial Plasmodia (Plasmodium vivax and Plasmodium falciparum) in Vitro, Jour. Exper. Med., 1912, xvi, 567. Lavinder, C. H.: A Note on the Cultivation of Malarial Plasmodia after the Method of Bass and Johns, The Journal A. M. A., Jan. 4, 1913, p. 42. Thompson, J. H., and Thompson, D.: The Cultivation of Benign Tertian Malarial Parasites (Plasmodium vivax) in Vitro by Bass's Method, Ann. Trop. Med. and Parasit., 1913, vii, 153. Ziemann, H.: Ueber die Bassche Kultur der Malariaparasiten in Vitro und die daraus sich ergebenden Resultate, Centralbl. f. Bakteriol., 1 Abt., Originale, 1913, lxvii, 482.

[2] Bass, C. C.: Cultivation of Malarial Plasmodia in Vitro, Am. Jour. Trop. Dis. and Preventive Med., February, 1914, p. 546.

## THE OCCURRENCE OF URINARY CALCULI

Owing to the fact that in this country the occurrence of urinary calculi in man appears to be rather evenly distributed and favors no particular locality, we are liable to forget that in certain parts of the world there are circumscribed "stone districts." Some of the Scandinavian countries have been reputed to be free from the existence of these concretions; whereas in certain other regions of the world stone is a common malady. The incidence of urinary concretions can scarcely be correlated with climate or geographical location, for the "stone regions" occur in both warm and cold countries, inland as well as along the coast, in the highlands and the lowlands alike. Some indication of the wide-spread, though not uniform incidence is obtained from the statement of a recent writer who reports that there are "stone districts" in England (Norfolk, Bristol, etc.), the west of France, about Moscow in Russia, in some parts of Germany, lower Egypt, upper India and in Holland.

On the authority of A. Hirsch[1] it may be assumed that the Asiatic continent ranks first in prominence in the distribution of urolithiasis throughout the world. Even in Asia, however, there are areas of immunity, so to speak, mingled with those in which stone is common. The northwestern provinces of India are said to be preeminently afflicted, whereas urinary calculi are rarely reported in the region of the lower Ganges. Similar differences exist between north and south China; the former is free from stone, which is so common in the south that special hospitals for those suffering from urinary lithiasis have been developed, in Canton for example. Indeed, this form of disease has been described as endemic for the province of Canton.

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[1] Hirsch, A.: Handbuch der historisch-geographischen Pathologie, 1883, iii, 319.

The hypotheses regarding the etiology of calculus have been so varied that it need not be considered strange if the explanations for the peculiar distribution of urolithiasis have been equally divergent. So long as the cases were grouped together in a common category quite independent of the real chemical nature of the calculi themselves, one could scarcely expect much progress in the interpretation of such disease. It would be quite as rational to class all fevers, as was once done, in a single group and hope to unravel their etiologic significance from a single symptom-complex. Concretions of inorganic salts of calcium and magnesium, oxalates, uric acid and urates, cystin and rarer components have too often been taken without further analysis as the indication of a common malady — stone. No stretch of chemical or physiologic imagination will permit so heterogeneous a group of compounds to be ascribed to a common origin, or their deposition in the kidney, bladder and urinary passages to be uniformly charged to an identical cause.

The investigations of recent years leave no doubt, further, that the individual "stone districts" show an unlike predominance of the different chemical types of calculi. In India, for example, oxalates appear to be quite prominent, pure uric acid concretions being relatively scarce. In Egypt, mixed calculi composed of oxalates and urates predominate; whereas in England they are said to be found rarely, if ever, although urate concretions are in turn extremely common there. A careful investigation made by Abderhalden and Hanslian[2] on calculi from the inhabitants of Asia Minor showed that they are essentially inorganic in character, calcium and magnesium being conspicuous. In contrast with these varied types is the latest report regarding the calculi of the Chinese, in which uric acid appears to be even more dominant than it is among the European specimens.[3] It is as yet almost futile to account for such group variations — for the incidence of oxalate concretions in Egypt and India, of urate calculi in Europe and China, or the comparative immunity of the negro races of Africa.[4] Certain hypotheses appear now to be excluded, as for example that of the peculiar posture assumed by certain of the races during micturition. This has been believed by some to favor a retention of urine in the bladder and thus facilitate precipitation of less soluble urinary components. Parasitic invasion of the urinary tract can likewise scarcely be called on to account for the diversity of phenomena reported, though at one time the frequency of stone in Egypt and Natal was attributed to *Bilharzia* eggs in the tract providing a nucleus for the deposition of urinary salts. A comparable hypothesis has been furnished for the conditions in China where the parasitic agent is the *Schistosomum haematobium*. The doctrine of the coincidence of parasitic invasion of the urinary tract and the occurrence of stone cannot be applied very broadly.

The most tenable theories undoubtedly center in nutritional causes. The intake of food and drink, varying as it does within wide limits of racial habit, geographic opportunity and economic necessity, provides factors of such unlike and manifold character that only further statistical studies can reveal the true etiologic relationships. We realize to-day that it need not be a preponderance of meat or vegetable diet, respectively, which occasions the presence or absence of urinary urate deposits. The balance of acids and bases in the organism, the equilibrium between these factors as illustrated in the resulting reaction of the urine, may be the determining cause of precipitation or solution. There is an interplay of many chemical components, the upset of which may spell disaster. The symptoms of gout, for example, are not confined solely to the meat-eating peoples. Typical vegetable dietary products like wheat and potato bring about quite unlike consequences in respect to the metabolic "rubbish" which they leave behind them. Until a more detailed knowledge of the diet of diverse peoples becomes available we can scarcely hope to solve the problems of the incidence of urinary calculi. Increasing knowledge in respect to the chemical features of both food and urine is likely to lead more speedily to defensible conclusions than are hypotheses involving questions of race, geologic conformation or contemporaneous disease.

## PROSECUTION OF RESEARCH WORKERS

Elsewhere[5] appears an account of the trial of Dr. Joshua E. Sweet, one of the six members of the faculty of the Department of Medicine of the University of Pennsylvania, charged with wanton and unnecessary cruelty to dogs. Indictments were brought under the state law forbidding cruelty to animals. The principal witness of the prosecution was a former employee of the university, who testified that the cruelty consisted in the character of the food fed to the dogs, but who was forced to admit on cross-examination that he kept for his own profit eight hundred dogs and fed them on the same food. The other leading witness for the prosecution was a woman member of the local society for the prevention of cruelty to animals, who fainted on the witness stand when forced, under cross-examination, to contradict her direct testimony. Against the objections of the attorneys for the defense, the court allowed the prosecution wide latitude in the admission of testimony, refusing to limit the evidence to the specific instances of cruelty on the specified dates charged in the indictment. The court also permitted lay witnesses to testify on technical subjects. In his charge to the jury, the judge instructed that the legal aspect of the case was not affected by the object of the experiments and that the fact that the investigations were conducted to obtain information for the alleviation of human suffering was not an adequate defense. Here is a quotation from the judge's charge to the jury:

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[2] Abderhalden, E., and Hanslian, R.: Beitrag zur Kenntnis der Zusammensetzung der Blasensteine von Bewohnern Kleinasiens. Versuch, die Ursache ihrer Entstehung zu ergründen, Ztschr. f. physiol. Chem., 1912, lxxx, 113.

[3] Pfister, E.: Chinesische Blasensteine, Ztschr. f. Urol., 1913, vii, 945.

[4] Pfister, E.: Die Steinkrankheit bei der Negerrasse, Arch. f. Schiffs- u. Tropenhygiene, 1913, p. 599.

[5] See page 1341, this issue.

> I charge you that the law of Pennsylvania does not allow pain and suffering, torment or torture to be inflicted on dogs for any purpose except the relief of the suffering of the dog itself.

If there are any dog-pounds in any of the cities of Pennsylvania, the keepers would do well to inquire into the law as interpreted by the learned judge in this case, else they might find themselves liable to indictment under the same law and ruling.

According to the newspaper reports, when the case went to the jury, it developed that one member of the jury had already made up his mind, although whether his decision was reached before or after the evidence was introduced is not stated. This juror, it is said, refused even to discuss the case with his colleagues. One is led to suspect that he must have been an antivivisectionist. At any rate, the jury after forty-six hours' deliberation reported that it was unable to agree on a verdict and was discharged. The majority of the jurors were for complete vindication.

Commenting on the charge to the jury, the Philadelphia *Public Ledger* says, editorially:

> To accuse men of the foremost scientific standing in America of performing operations on dogs for the sake of gratifying their own bloodthirsty instincts is the height of wicked absurdity and comparable only with such a campaign of wilful and persistent misrepresentation as that of the recent exhibit, in the windows of a building on Chestnut Street, of practices which scientific vivisectors do not perform, either in the manner or for the purposes indicated.

The Philadelphia incident, regardless of its ultimate outcome, is of value as an illustration of the general principles underlying the position of the scientific medical profession on this subject. Briefly stated, these are that the use of animals for experimental purposes is absolutely essential to the progress of scientific knowledge for the control and suppression of human diseases. No greater calamity could befall the public than the curtailing of the liberty of scientific men to carry on such experimental work. Such a privilege, however, carries with it the responsibility on the part of all scientific men and institutions in which experimental research is carried on to take every possible precaution to avoid even the appearance of inflicting any unnecessary pain, hardship or suffering on the animals which are the subjects of such experiments and through whose pain the human race is the gainer. This case, therefore, emphasizes what is generally recognized as a fact, that it is the duty of research workers at all times and under all circumstances to avoid inflicting unnecessary pain or discomfort on the animals that are being utilized for humanity's sake. We make this as a general statement without any reason for believing that unnecessary pain and discomfort are inflicted, at least in recognized research laboratories. Heads of departments and college authorities should—and we believe do—recognize their responsibility, not only for their own acts, but also for the acts of their assistants, subordinates and employees. It is no excuse for the head of a department to say that he has done nothing for which he can be criticized or that he has given directions to his subordinates to do certain things. He is responsible for their actions. It is directly incumbent on the responsible head of each department in which animal experimentation is necessary to see to it that everything possible is done to avoid inflicting pain, discomfort and suffering on the animal so far as possible. When this is done, the responsible person should be held, not only morally, but also legally, accountable for any unnecessary or avoidable pain or suffering.

This leads to the statement of another fact, that the general laws relating to cruelty to animals, now in existence in practically all the states, are amply sufficient without any special legislation on the subject. This has always been the contention of The Journal. There is no need of special laws against the infliction of pain on animals during scientific experimentation—such laws already exist. The same law that punishes the cruel or thoughtless teamster or cab-driver will also punish the cruel or thoughtless scientific man, if such exists. The Philadelphia incident is ample proof of this. The Pennsylvania law against cruelty to animals is sufficient to punish the person guilty of such cruelty, whether he be a professional man or a day laborer.

The Philadelphia case, it is understood, will be retried—let us hope before a more judicial judge and an impartial jury. As to the ultimate vindication of the members of the university faculty, The Journal has no doubt. This case can be made of untold value to the cause of scientific research as a demonstration, on the one hand, that general laws against cruelty to animals are entirely adequate for the control of scientific experimentation, and, on the other hand, of the grave responsibility which rests on all scientific men carrying on such experiments to avoid every possible cause for criticism.

## THE BEHAVIOR OF TIN IN THE BODY

Although the salts of tin are no longer used therapeutically, the behavior of this metal in the body demands consideration for more practical reasons. Tin enters into the composition of all sorts of vessels and containers which are employed in the preparation, distribution, serving or preservation of food; and it is present in the parts of various machines or mechanical devices with which various edible products or potable liquids come into contact in the course of their manufacture into marketable form. There can be no doubt that tin has been contained in preserved foods, as a result of its being dissolved off the vessels used. Apparently, it is not often, if ever, present in sufficient quantities to induce detectable poisoning; for although some cases of "tin-poisoning" are reported in medical literature, in no instance has it been satisfactorily established that tin was the real cause of the intoxication. How little attention has been given to the toxicologic problem presented by the wide-spread use of tin is evidenced by the fact that prominent text-books on hygiene neglect to mention it at all.

The question has been raised whether or not any absorption takes place when the salts of tin enter the body by way of the mouth. The new investigations in the pharmacologic laboratory of the Bureau of Chemistry of the U. S. Department of Agriculture in Washington,[1] like earlier ones by the local government board in London,[2] leave no doubt of the possibility of absorption of tin from the gastro-intestinal canal. Indeed, it is suggested that when salts of this metal are fed over a prolonged period the alimentary mucosa may experience changes which favor the absorption of tin. Animals which had received daily doses of sodium stannous tartrate, for example, showed no tin in the urine during the first week, though it made its appearance in this excretion at a later period.

When tin is actually introduced into the circulation and thus distributed through the body, the gastro-intestinal tract appears to be the chief organ for its elimination. It is now well known that other chemical elements, like iron and calcium, are excreted through the bowel. The kidneys play a subordinate though an important rôle. Elimination of the metal is very slow, though appreciable amounts are excreted during the first day or two after its introduction into the organism.

An analysis of the organs and tissues of the body after the injection of soluble salts of tin has shown that its distribution, when once it actually reaches the circulation, must be very general. The tin disappears from the blood-stream within two or three hours after an intravenous introduction of its salts and can then be found in the liver, brain, muscles and elsewhere in the organism. The facts thus far available make it seem desirable to obtain far more extensive observations before any far-reaching conclusions concerning the hygienic relations of tin can be formulated. The studies begun by the government are timely.

## THE RATIONAL STUDY OF THE ACTION OF MINERAL WATERS

Those who have followed the progress of investigation in the biologic sciences fundamental to the study of medicine cannot have failed to notice the change which the past decade or two has brought about with respect not only to the lines of inquiry, but also to the materials forming the objects for experimental attack. Increasing attention is being given to the study of the lower forms of life, using simpler structures and more diffuse phenomena to elucidate the more general properties of living matter. As the late Sir Michael Foster expressed it in a memorable address before the British Association for the Advancement of Science meeting in Toronto in 1897, by far the greater part of the results obtained in physiology in the past half century have been gained by inquiries restricted to about half a dozen kinds of backboned animals; the frog and the myograph, the dog and the kymograph have almost seemed the alpha and omega of the science. Of late, however, we have witnessed the return to the study of the lowest forms, as they are sometimes called; and "general physiology" with its immediate relations to the minute masses of protoplasm exemplified in the unicellular organisms and individual cells is claiming a large share of attention. First it was the morphologist who directed his energy to unraveling the secrets of the simpler units of living matter; and subsequently the physiologist began to search for the solution of the problems of function at the same source.

The classic researches of Jacques Loeb may be cited as an illustration of the far-reaching knowledge derived from the newer field of inquiry. The study of the metabolism of the egg-cell, in which morphologic and chemical transformations with their attendant energy exchanges proceed hand in hand, has revealed how profoundly the inorganic medium of the cell may affect its behavior. The developmental changes in the egg-cell have been shown by Loeb and his followers to be modified by the osmotic pressure of the fluid environment, its chemical reaction, and the specific nature of the individual ions contained therein. It has been found possible to measure the respiratory processes in these small units of living matter and to modify their production of carbon dioxid and consumption of oxygen.

The time has come to turn back from the lower forms and single-celled organisms and to ask whether the facts which have been exemplified in relation to them can be applied to the higher organisms. In the modification of such essential processes as cell oxidations the nature of the solution in which the cells are bathed has been found to be of directive moment. Can similar influences, retardations and accelerations of the function of agglomerations of cells, such as the tissues and organs of man represent, also be exerted by variations in concentration and composition of the inorganic medium which forms their environment? In attempting to bring about such changes in the higher types we are confronted by a complicating factor in the regulatory devices constantly functioning to prevent these very alterations in the medium, the blood, which determines the surroundings of the cell. The kidneys, in particular, are charged with the physiologic duty of preventing any considerable changes in osmotic concentration or elementary composition in the circulating fluid; and in health the task is well performed.

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[1] Salant, W.: Rieger, J. B., and Treuthardt, E. L. P.: Absorption and Fate of Tin in the Body, Jour. Biol. Chem., 1914, xvii, 265.

[2] Buchanan and Schryver: Local Government Board (Med. Dept.) Report of Inspector of Foods, London, 1908, p. 18.

The health resort which emphasizes the virtues of the mineral waters which its visitors are advised to drink, attempts in essence to do what the physiologist has accomplished in his experiments with the isolated cell, namely, to modify cellular function by changing the inorganic medium in which the organism exists. The development of certain eggs is almost entirely retarded, for example, in the absence of one of the three essential ions, sodium, potassium or calcium. Ions of a single element, such as sodium, may be toxic when present alone, whereas the egg which exhibits the harmful effects thereof may be maintained intact in pure, distilled water. Thus it has come about that the conception of physiologically balanced solutions of various ions has been developed, the relative proportions in which they exist in sea-water being looked on as especially favorable. Can mineral waters effect any detectable metabolic changes by altering the environment of the cells, in the face of the efficient counteracting regulatory devices of the complex organisms of the higher animals? The problem is being put to the test, in the interest of rational balneology, in the physiologic laboratory of the Agricultural College in Berlin under Zuntz' guidance.[1] Experimental details are of little interest here. It may suffice at present to note that the oral administration of different combinations of ions — anions and cations — in quantities representative of the practice prevailing at various spas has actually shown the possibility of altering, though slightly, the respiratory quotient in some of the cases and of modifying the oxidative or metabolic processes in the organism. Carbonates, phosphates and chlorids of the same cations (sodium, potassium, magnesium, calcium) by no means behave alike. This experimental undertaking of Zuntz marks the beginning of a new chapter in the exposition of the rôle of mineral waters, the publication of which must await the progress of research. The completed story ought to prove of distinct value in the field of practical medicine.

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[1] Zuntz: Die Einwirkung der *Salze und ihrer Ionen* auf die Bemerkun-
Oxydationsprozesse in unserem Körper. I. Einleitende 333.
gen, Ztschr. f. Balneol., Klimatol. u. Kurort-Hyg., 1914, vi, auf
Müder, W.: II. Untersuchungen über den Einfluss von Salzen den respiratorischen Stoffwechsel, ibid., p. 363.

# Current Comment

## TEETH, HAIR AND DUCTLESS GLANDS

The ductless glands have been held responsible for so many functions in recent years that one hesitates to add to their share of the responsibility for the proper performance of physiologic activities. Nevertheless, new suggestions of possible influences exerted by the organs of internal secretion are still frequently being brought to the attention of scientific observers. Dr. Arnold Josefson[1] of Stockholm has sought to defend the thesis that dentition and the early development of the hair are under the dominance of some of the ductless glands. In general, his argument centers in the fact that disturbances in the normal development of the teeth and the appearance of hair on the body are associated in many cases with known defects in the behavior of some of the glands of internal secretion, and that the anomalies can be corrected in some cases by suitable organotherapy. There is nothing fundamentally new in this doctrine. It has long been maintained that the thyroid and hypophysis, for instance, exhibit what has been interpreted as a functional hypertrophy during pregnancy. It is not at all unbelievable that if these maternal glands fail to contribute a due share of their determinative products during this developmental period, the embryo may suffer in its correlative growth. Serious irregularities in the dentition or the appearance of hair in the young may become the expression of some defect in the glands like the pituitary or thyroid which, if understood, may be remediable by administration of preparations of the corresponding tissues. Josefson has furnished clinical illustrations of the simultaneous occurrence of delayed dentition and persistence of fetal hair which could be corrected by administration of thyroid extract. Abnormal dentition is common in infantile myxedema and has likewise been improved by thyroid therapy. Hypertrichosis has frequently been observed in connection with rapid development of the sexual glands. The interrelations thus brought out raise the question whether organotherapy may not have an unexpected field of usefulness during the pregnancy of mothers in whom the family history warrants the suspicion of possible hereditary defects in the offspring.

## PATHOGENIC TUBERCLE BACILLI AND STREPTOCOCCI IN FRIEDMANN'S VACCINE

In our comments on the occasion of the first announcement by Friedmann of his alleged cure for tuberculosis, it was pointed out[2] that the secrecy maintained in regard to important details was not in accord with the prevailing ethical standards of the medical profession, that the proposed treatment was without any justification of an experimental nature, and that the possible danger of acquirement of or reversion to virulence of the bacilli injected appeared to overbalance whatever promises of benefit the exploiter of the treatment might make. That this danger is not groundless is shown by the results of certain experiments and observations recently published by Lydia Rabinowitsch,[3] who found that of guinea-pigs injected with acid-proof bacilli from Friedmann's vaccine, some developed small foci with bacilli in them and that one presented the picture characteristic of tuberculosis produced by the inoculation of feebly virulent tubercle bacilli of the mammalian type; furthermore, in rabbits injected with large quantities, slight changes resulted. Hence the bacilli constituting the vaccine vary from the type of tubercle bacillus, namely, that of cold-blooded animals, to which it has been announced by Friedmann that it belongs and which is *not pathogenic for guinea-pigs and rabbits.* To say the least, this observation places doubt on the methods employed in the preparation of the product, but there are also other ways in which to account for the presence in it of pathogenic tubercle bacilli. That the methods used in the preparation of the material sold for injection are crude in supreme degree is indicated by the fact that in a large proportion of different samples Rabinowitsch found *streptococci* which were pathogenic for guinea-pigs. No wonder that abscesses frequently appear at the site of inoculation. In one such case Rabinowitsch found tuberculous granulation-tissue in the wall, and she quotes Westenhöfer as having made a similar observation, so that we now know that Friedmann's so-called remedy not only is subject to contamination with streptococci, but actually may contain tubercle bacilli that are pathogenic for guinea-pigs and rabbits as well as for human beings. Hence this remedy for which much has been claimed, including harmlessness, fails in this respect also—it is not harmless.

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[1] Josefson, Arnold: Dentition und Haarentwicklung (Zahn- und Haarwechsel) unter dem Einfluss der inneren Sekretion, Deutsch. Arch. f. klin. Med., 1914, cxiii, 591.

[2] Friedmann's Inoculation against Tuberculosis, Current Comment, The Journal A. M. A., Dec. 14, 1912, p. 2158.

## MENTAL HEALING AS A COMMERCIAL ASSET

We live in an age of wonders and of progress. The conditions of yesterday are lost sight of in the amazing progress of to-day. So great have been the advances of scientific knowledge in the last fifty years that one is prepared for almost anything. Not only in the scientific world but in commercial matters as well is progress truly astonishing. Business enterprise to-day uses the worthless by-products and waste material of yesterday. The fact that the squeal of the pig is the only thing that goes to waste in the modern stockyards has long since passed into the realm of commonplace. Yet it remains for an accident insurance company to show systematically the financial value of the denial of human ills. In the Correspondence Department this week[4] appears a letter regarding the Preferred Accident Insurance Company of New York which, it seems, employs as an adjuster in Chicago a devotee of Christian Science. He is said to be a very valuable official on account of his ability to make the people insured in his company regard their injuries from a Christian Science point of view. Heretofore, the possibilities of a healer in any of the "mental science" cults have been restricted to "absent treatment" and "mental treatment," with the acceptance of such fees as the customs of the sect have prescribed. Thanks to the Preferred Accident Insurance Company of New York, a new and brilliant future is now open to the mental healer. He can be employed on a salary by accident insurance companies to convince the policyholders that they are not really hurt and consequently have no claim against the company. But why limit such beneficent activities to insurance companies? Why cannot each railroad and street-car company have a mental healer in its employ who can hasten to the scene of the accident and convince the victims that the unfortunate event was only a delusion of their mortal mind and that nothing has really occurred to them? Nor can the development of this new and brilliant method be limited to commercial and industrial conditions. Our government is standing on the brink of war with Mexico. Why send surgeons with the battle-ships, or ambulances and hospital trains with the Army? A sufficient corps of mental healers, sent out on the battle-field after each engagement, will convince each wounded soldier that the bullet which struck him was only a delusion and that nothing has really happened. Bandages, dressings, anesthetics, instruments, hospitals, sanitary precautions and regulations are all useless. If the teachings of the "mental healer" are to be accepted, we have only to convince ourselves that everything painful, dangerous or unpleasant to ourselves or others is non-existent, in order to become prosperous, individually and nationally.

## AN ENDOWED TEACHING HOSPITAL IN CHICAGO

As stated elsewhere,[1] an endowment of one million dollars has been given by Mr. James E. Deering to the Wesley Hospital, Chicago, an institution which on previous occasions has received generous aid from Mr. Deering's father and brother. Aside from the fact that the gift is large, it is worthy of special mention because of the unusual appreciation by the donor of how the gift can be made to do the most good. The income is to be used to help real charity patients, and the trustees have been requested to investigate the worthiness of those who apply, so that the gift "shall contribute everything to real charity and nothing to pauperism." Even more worthy of note, however, is the statement by Mr. Deering that "the best hospital is that which is closely related to a good medical school." He stipulates that the Wesley Memorial Hospital is to be a teaching hospital, an adequate staff to be provided by the Medical Department of Northwestern University. It is also stipulated that the medical school "must maintain and strictly enforce a high standard of preparatory studies for the admission of students." Provision is also made for the maintenance of a free dispensary and of clinical laboratories, the medical school and the hospital to share equally the expense. Power also is given to the trustees if they deem it wise to provide for lectures in public health and hygiene to be "given to the poor public either in the hospital or elsewhere." In fact, Mr. Deering gave it as his purpose "to give to the trustees of the hospital the largest possible latitude in the expenditure of the interest on the fund, provided that it shall be used for the benefit of the deserving poor." That this gift need not prevent future mergers of medical colleges or the development of medical education in Chicago is made clear by the statement that "nothing in this deed of gift shall be construed as in opposition to the consolidation at any future time of the Medical Department of Northwestern University with one or more medical schools." One who wishes to do for the deserving sick who are unable to care for themselves could not plan better than Mr. Deering has done. The bequest which he has made, however, will not only help the thousands of sick poor who will be cared for in the Wesley Memorial Hospital, but will also help thousands of others in the future, since it is to aid in the education of physicians who thus may be more practically trained in the care of the sick.

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[3] Rabinowitsch, Lydia: Deutsch. med. Wchnschr., 1914, xl, 686; abstracted in the Berlin Letter, this issue, p. 1343.

[4] See page 1348.

[1] Medical News, page 1337, this issue.

## THE PATHOGENESIS OF EPIDEMIC POLIOMYELITIS

The theory that the virus of epidemic poliomyelitis may be communicated to man by the bite of infected blood-sucking insects found a ready acceptance at a time when this mode of transmission of infectious diseases achieved so much prominence through a number of well-authenticated instances; but a new argument against the introduction by insects of the virus of epidemic poliomyelitis has just been furnished by Flexner and Amoss.[1] Their experiments emphasize the relatively great difficulty of infecting monkeys by direct introduction of the virus into the blood, which represents essentially what happens when insects bite. The infection even from very large doses of active poliomyelitic virus injected directly into the circulation is much delayed, whereas infection is promptly brought about by direct introduction of the virus into the brain, subarachnoid spaces or peripheral nerves. We may suppose, therefore, that the route by which the virus contained within the blood reaches the central nervous system is an indirect one. It is now generally conceded that the poliomyelitic virus enters the body by way of the upper respiratory passages, and in particular through the nasopharyngeal mucous membrane. Once within this membrane, the virus may pass, as Flexner and Amoss have pointed out, through the lymphatic channels surrounding the filaments of the olfactory nerve to the leptomeninges, where it reaches the cerebrospinal fluid; or it may first enter the blood and be conducted to the central nervous organs by the general circulation. The newer experiments afford valuable support to the hypothesis that infection of the nervous organs in man occurs by way of the cerebrospinal fluid. The virus readily traverses the nasal mucous membrane to reach this fluid, which is capable of carrying the virus to the interstices of the nervous tissues. Apparently, when the circulation forms the channel of entry, the virus enters the intimate structures of the nervous tissues, not directly from the blood, but indirectly in passing from the blood into the cerebrospinal fluid. To accomplish this transfer time is required, since the barrier of the choroid plexus must first be overcome. The micro-organism of poliomyelitis seems unable ordinarily to penetrate the capillaries to gain direct access to the interstices of the central nervous organs. Interstitial lesions of the leptomeninges are caused in the development of the specific lesions of the disease; and these pathologic conditions, with those of the cerebrospinal fluid itself, play an important part in the pathogenesis of epidemic poliomyelitis.

## THE STORAGE OF PROTEIN IN THE LIVER

The importance of the liver as a depot for carbohydrate has been appreciated since the epoch-making discovery of glycogen by Claude Bernard more than half a century ago. A consideration of the constituents of that highly prized delicacy of diet, pâté de foie gras, and of the household remedy, cod-liver oil, brings to mind the function which the liver may perform in the storage of fat. How about proteins? Can these also be deposited in the largest of all our glandular organs, when suitable dietary conditions arise? Intimations of an increase in the size of the liver incident to a diet rich in protein have not been wanting. The older histologists believed that they discovered an appropriation of protein by the liver-cells under advantageous feeding, and an increase in the relative size or weight of the organ has been alleged to occur. It is quite conceivable that one or both of two conditions should arise, namely, (1) a mere deposition or retention of protein and (2) an actual hyperplasia of the liver. If new tissue actually is formed one would expect the other essential components which go to make up the protoplasm of the cells to be retained along with the augmented supply of protein. The experiments which Tichmeneff[1] has conducted in Hofmeister's laboratory lead to the conclusion that both the size of the liver (in relation to the total weight of the person) and the actual content of protein can be distinctly augmented by protein feeding. It would appear, therefore, that a store of all of the familiar nutrients can be retained in the liver.

## SPRING TONIC

In April the "patent medicine" tonic (?) flourishes. As the first warmth of spring brought a feeling of lassitude, the farmer's wife in older days would go searching through the woods for "yarbs" from which to make a brew as a tonic for the whole family. The city man, feeling the laziness of "spring fever" coming over him, brought from the corner drug-store a 49-cent package of "Old Doc" Somebody's spring tonic, consisting of the same useless "yarbs," a liberal dose of pure alcohol, and perhaps a touch of strychnin. But things are changing; there are not so many taking "spring tonics" as in the older days. Men have learned that the best spring tonics are the gifts of a beneficent Nature. A full breath of fresh spring air, a brisk walk along a grass-grown road, a plunge into the cool waters of the old swimming-hole—if the water is pure and cold—or the morning shower if in the city, fresh green food, or the pursuit after a bounding golf-ball over a springy course — those are real invigorators, true tonics.

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[1] Flexner, S., and Amoss, H. L.: Penetration of the Virus of Poliomyelitis from the *Blood into the* Cerebrospinal Fluid, Jour. Exper. Med., 1914, xix, 411.

[1] Tichmeneff, N.: Ueber Eiweissspeicherung in der Leber, Biochem. Ztschr., 1914, lix, 326.

# *Medical News*

## ALABAMA

**Personal.**—Dr. Russell M. Cunningham, former lieutenant-governor of Alabama and founder of the Cunningham Infirmary, Ensley, has been elected health officer of Birmingham, vice Dr. Robert Nelson, retired.——Dr. Jesse E. Robins has been appointed health officer of Ensley.

**Jerome Cochran Lecture.**—At the meeting of the Medical Society of the State of Alabama at Montgomery, the Jerome Cochran lecture, established in 1898 in memory of Dr. Jerome Cochran, first health officer of Alabama, was delivered by Dr. Frank W. Smithies, Chicago, on "Contributions of the Twentieth Century to the Better Understanding of Gastric Cancer."

## CALIFORNIA

**New Society.**—The Los Angeles Obstetric Society was organized March 25, with an initial membership of forty-seven. Dr. Titian J. Coffey was elected president, and Dr. George E. Malsbary, secretary.

**Personal.**—Dr. Merrill W. Hill, Redlands, was seriously injured in a collision between his automobile and another motor car, April 11.——Dr. Wilfred E. Chambers, Oakland, was thrown from his automobile April 4, fracturing his right clavicle.——Dr. Norman B. Williamson, city health officer, assumed his duties at the head of the local health board at Sacramento, April 11.

**County Physicians Exonerated.**—The grand jury has filed the report of the investigation into the deaths of the eight patients in the Los Angeles County Hospital, alleged to have been due to the administration of neosalvarsan, placing no responsibility on the staff of the hospital, but recommending that the federal authorities be requested to exercise more stringent supervision of the importation of the remedy in order that the fresh supply may be available at all times.

## ILLINOIS

**Personal.**—Dr. W. S. Black, Port Byron, who was stricken with cerebral hemorrhage recently, is reported to be improving. ——Dr. J. Levitan of the staff of the Peoria State Hospital has been transferred to the Elgin State Hospital.

**Urges Colonies for Insane and Epileptic.**—In the report submitted to the governor and board of administration, April 15, Mr. A. L. Bowen, executive secretary of the State Charities Commission, recommended that the new state hospital for the insane, Alton, and the Epileptic Colony, Dixon, be constructed on the colony plan, using one-story buildings for one type of insanity and for all epileptics.

### Chicago

**Society Changes Title.**—The Chicago Surgical Society, recently incorporated, has changed its name to the Chicago Academy of Surgery.

**Typhoid Carrier.**—Several cases of typhoid fever in the southwestern part of this city are said to have been traced to the Rosedale Dairy Company, an employee of which was found to be suffering from ambulant typhoid.

**Endowment Fund of Rush Alumni.**—Steps are being taken by alumni of Rush Medical College to create a permanent fund of $30,000, to be used for the benefit of the alumni association and a fellowship. About $10,000 has been subscribed to date. An initial gift by Norman Bridge of Los Angeles was the foundation of the fund. Life memberships in the alumni association are to be secured by those eligible, and over forty have already been paid in. At the June commencement the faculty of the college will give a dinner to the students and alumni, at which further steps will be taken.

**Foreign Surgeons Visit Chicago.**—Eighty-three European surgeons who were in attendance at the Fourth International Surgical Congress, New York City, arrived in Chicago, April 20, on a special train. Local members of the American Surgical Association gave a dinner in their honor at the Blackstone Hotel on that day. The next day was spent in sightseeing and visiting clinics at the various hospitals. They were given a luncheon at noon by the members of the Chicago Surgical Society and left for Rochester, Minn., in the evening. The local committee on entertainment consisted of Dr. John B. Murphy, Arthur Bevan and Lewis L. McArthur.

**Gift to Wesley Hospital.**—Under the head of bequests and donations in this issue was noted the gift by James Deering of $1,000,000 to Wesley Hospital. This munificent gift is to be used as an endowment fund for charity beds in connection with the Northwestern University Medical School. It is provided that Wesley Hospital shall be a teaching hospital, and that the staff shall be the faculty of the Northwestern University Medical School. Part of the income may be used for clinical laboratories and dispensaries for the school. The administration of the gift is vested equally in the hospital and in the medical school. The gift is a perpetual endowment and is made in memory of William Deering, father, and Abby Deering Howe, sister of the donor. The institution will hereafter be known as the Wesley Memorial Hospital.

**Baby Week.**—The Infant Welfare Society has been carrying on a campaign during the last week against the mortality of children. The week began with a public meeting at the Olympic Theater on Sunday, over which Dr. Lucius Teeter presided. Addresses were delivered by Mrs. George Bass, president of the Chicago Women's Club, on "The Interest of Women in Child Welfare"; by Judge Julian W. Mack on "The Community's Responsibility for Infant Welfare"; by Dr. S. Josephine Baker, director of the Bureau of Child Hygiene of New York City, on "The Result of Infant Hygiene in New York City," and by Miss Julia C. Lathrop, Washington, D. C., on "National Interest in Infant Welfare." The object of the campaign is to obtain funds to open fifty infant welfare stations in the city for saving of babies when the hot weather comes. Appeals to the public appear in all street-cars and on hundreds of bill-boards throughout the city, and an illuminated electric sign has been installed at State and Madison streets, bearing the legend "Baby Week, April 19-25. Help Chicago's Sick Babies. Watch the Fund Grow. Infant Welfare Society." Under this sign appears the sum added to the fund during the day.

## INDIANA

**Drinking-Water on Trains Tested.**—The state health authorities will hereafter test the drinking-water provided for passengers on steam and electric trains. Besides the chemical and bacteriologic tests, investigation is to be made as to how often the coolers are cleaned, the quality of ice used and whether or not sanitary methods are used in handling both water and ice.

**Conviction for Sale of Diseased Meat.**—The Board of Health of Indianapolis, under the leadership of Dr. T. Victor Keene, has begun an investigation into the sale of diseased meat in that city. The first case tried resulted in the conviction of Charles J. Gardner, one of the more prominent packers, and a maximum sentence of six months in jail, together with a fine of $500 was imposed. "The specific offense for which Gardner was sentenced," says the Indianapolis *News*, "was charged by W. A. McConnell, chief meat inspector for the City Board of Health, who averred at the trial that Gardner, on April 2, had in the cooling-room of his meat plant the carcass of a sheep that had not been slaughtered as sheep are usually slaughtered, but had died before being butchered, and from which came an offensive odor, indicating a corrupt and unwholesome condition. Corroborative evidence to the effect that tubercular cattle and cholera hogs were also butchered in the packing-house was introduced and in the argument on the case, Robert Hughes, special attorney for the Board of Health, denounced Gardner as a "potential murderer." "It is understood this case is only one of a number that the city health officers will prosecute in order to insure clean food in the city." An appeal from the decision of the lower court is expected and the outcome of the investigation is awaited with interest.

## KANSAS

**New Officers.**—Golden Belt Medical Society, twenty-fifth annual meeting at Junction City, April 2: president, Dr. Walter A. Carr, Junction City; secretary, Dr. Schuyler Nichols, Herington.

**Personal.**—Dr. John G. Horne, Coffeyville, fell April 5 and sustained serious injuries to the head.——Dr. Charles H. Kaiser, Goessel, who is suffering from a mental breakdown, has been taken to a sanatorium.

## KENTUCKY

**Trachoma Hospital.**—The government has just located the third hospital for treatment of trachoma at Beattyville, under the direction of Dr. John Mullen, U. S. P. H. S. The other hospitals have been located at Hindman, Knott County, and Hyden, Leslie County. They are located so as to serve an area of approximately 80 by 100 miles.

**Hospital Houses Medical Society.**—The Board of Public Safety has granted permission for the Jefferson County Medical Society to occupy the basement room underneath the central ward of the New Louisville City Hospital building, which the society is to fit up as its headquarters. The understanding is that the society is to furnish the room in conformity with the finish of the remainder of the hospital.

**Personal.**—Dr. James R. Howell, Buffalo, has been appointed United State Deputy Marshal, succeeding Dr. Lewis Ryans, Louisville.——Dr. John C. Moseley, Henderson, has been reelected second vice-president of the Henderson Anti-Tuberculosis Association.——Dr. Richard R. Elmore has been elected president of the Louisville Automobile Club.——Drs. Dunning S. Wilson, George S. Coon and Eugene Y. Johnson have been appointed members of the board of trustees of the Louisville Tuberculosis Hospital.

**Changes in State Hospital Staff.**—At the last meeting of the State Board of Control of Charitable Institutions the following changes were made in the state hospitals for the insane, necessitated by the resignation of Dr. William E. Gardner as superintendent of the Lakeland Hospital: Superintendent at Lakeland, Dr. Frank L. Peddicord, Boone County, now first assistant; Dr. William E. Render, Brownesville, Eastern State Hospital, Lexington, as first assistant at Lakeland; Dr. W. E. Campbell, Bowling Green, now first assistant at Hopkinsville, second assistant at the Eastern State Hospital, succeeding Dr. Render; Dr. Harry G. Sanders, Campbellsville, first assistant at Hopkinsville. The changes will become effective May 1.

## MARYLAND

**Board of Osteopathic Examiners Created.**—A bill creating a board of osteopathic examiners has been passed by the general assembly and signed by the governor.

**Personal.**—Dr. Delano Fitzgerald, Baltimore, has returned from a four-months' trip to the West Indies.——Dr. George Y. Massenburg, who has been connected with the government hospital in Panama, has returned to his home at Towson.

**New Officers.**—Somerset County Medical Society at Crisfield, April 7: president, Dr. Rastus R. Norris, Crisfield; secretary, Dr Henry M. Lankford, Princess Anne.——Anne Arundel County Medical Society at Annapolis: president, Dr. Thomas H. Brayshaw, Glenburnie; secretary, Dr. Louis B. Henckel, Jr., Annapolis.

**Concert by the Physicians' Orchestra and Chorus.**—At the annual meeting of the Medical and Chirurgical Faculty of Maryland, April 28 to 30, there will be a concert by the Physicians' Orchestra and Glee Club for the benefit of the building fund of the library. Dr William L. Rodman of Philadelphia will deliver the annual oration on "Gastric Ulcer and Its Treatment." Dr. John Shelton Horsley of Richmond, Va., will read a paper on "Surgical Repair of Blood-Vessels."

**Typhoid Disappearing.**—Statistics collected at the Health Department show that typhoid fever has been decreasing steadily for several months. Only three new cases have been reported to the department since April 1. Treatment of the reservoirs with hypochlorite of lime is given as one of the causes of the reduction of typhoid fever. The belief is current that by the time the filtration plant is in operation, possibly a year hence, Baltimore will have even less typhoid than at present. Filtration of the drinking-water will go far toward the elimination of city-bred typhoid.

**Foreign Surgeons Visit Baltimore.**—A large party of foreign surgeons who have been attending the International Surgical Congress in New York have arrived in Baltimore to attend a series of clinics which will be held at the Johns Hopkins Hospital. Those taking part in the clinics will be Dr. Howard A. Kelly, John M. T. Finney, William S. Baer, Richard H. Follis, Hugh H. Young and Joseph C. Bloodgood. Among the distinguished visitors are Professor Schuller of Germany, Prof. H. Morestin of Paris, Dr. Lexer of Germany, Professor Proust of the University of Paris and Prof. Carlo Gangitano of Naples, Italy, and many others.

**Vaccination Campaign Ends.**—Health Commissioner Nathan R. Gorter has announced that the small-pox situation in Baltimore is clearing up and that the twenty-four extra vaccine physicians recently employed will be laid off. They have worked thirty days and have vaccinated less than ten thousand persons. The number was not greater, it is asserted, because the physicians sought only those who had never been vaccinated. Their work is regarded as satisfactory and highly beneficial to the city. There have been but eleven new cases of small-pox this week and the Health Department feels that it has the situation so well in hand that it can be looked after by the regular staff of twenty-four health wardens.

## MASSACHUSETTS

**Personal.**—Dr. William L. Richardson, Boston, has been appointed trustee of the Perkins Institute and Massachusetts School for the Blind.——Dr. William H. Davis, statistician in the vital statistics department of the Boston Health Department, has been retired on account of the abolition of the office.

**New Contagious Disease Building.**—Work on the construction of the new contagious disease building of the Boston City Hospital, for which an appropriation of $267,000 was made last year, is to begin very soon. The site of the building is occupied by a block of tenement houses on Massachusetts Avenue, opposite the hospital.

**Children's Hospital Dedicated.**—The formal opening ceremonies of the Children's Hospital, Longwood Avenue, Brookline, were held April 15. Addresses were made by President Lowell of Harvard University, Mayor Curley of Boston, Dr. Francis H. Brown, secretary of the medical staff, Dr. Edward H. Bradford, dean of the medical department of Harvard University, and others. The hospital has cost about $650,000.

## MICHIGAN

**Open-Air School for Battle Creek.**—An open-air school is to be established at once on the second floor of a building on Champion Street, for children who will be benefited by fresh air and sunshine.

**State Board Officers Reelected.**—At a meeting of the State Board of Health at Lansing, April 11, Dr. Victor C. Vaughan, Ann Arbor, was reelected president, and Dr. Thomas M. Koon, Grand Rapids, vice-president.

**State Epileptic Colony.**—The State Epileptic Farm Colony at Wahjemeja, will open a temporary building May 1, which will accommodate twenty-five patients. The contract for the first permanent building of the colony has been let for $58,000. This building will house fifty patients, and is to be completed early in October.

**Personal.**—Dr. William G. Bird, wife and son, Flint, sailed from New York for Europe, April 16.——Dr. Rudolph J. E. Oden, Cadillac, will sail for Germany, May 5.——The unoccupied sanitarium owned by Dr. Charles A. Fletcher, Kalamazoo, was burned down April 9, with a loss of $40,000.——Drs. Floyd E. Westfall, Raymond A. Clifford and Harry B. Britton, advisory Board of Health of Ypsilanti, resigned April 5, it is said, because their recommendation of compulsory vaccination was vetoed by the Board of Health.——Dr. Nelson M. McLaughlin, Lake Odessa, has been appointed a member of the State Board of Registration and Medicine, vice Dr. G. W. Nafe, Fremont, deceased.——Dr. Flemming Carrow, Detroit, has been appointed consulting ophthalmologist on the staff of the Michigan Home and Training School, Lapeer.——Dr. George B. Gesner, Marshall, is reported to be very ill.

## MISSISSIPPI

**Personal.**—Dr. Charles E. Catchings, Woodville, has been elected president of the State Board of Health, vice Dr. Morris J. Alexander, Tunica, resigned.——Dr. W. N. Reed, Fulton, has succeeded Dr. J. H. Stone, Tremont, as health officer of Itawamba County.

**State Association Meeting.**—At the annual meeting of the Mississippi State Medical Association held in Columbus, April 14-16, $200, or as much thereof as may be necessary, were appropriated for the expenses of the president in conducting the affairs of his office. Dr. Hugh L. Sutherland, Benoit, was elected an honorary life member of the association, the only one on its roll, and the following officers were elected: president, Dr. Jacob S. Ullman, Natchez; vice-presidents, Drs. James W. Lipscomb, Columbus; Thomas H. Seay, Laurel, and John H. Portwood, Kosciusko; councilors, first district, Dr. Thomas M. Dye, Clarksdale; second district, Dr. John C. Culley, Oxford; delegate to the American Medical Association, Dr. Lucien C. Feemster, Tupelo. Hattiesburg was selected as the place of next meeting and the date of meeting was changed from the second Tuesday in April to the second Tuesday in May.

## MISSOURI

**Southwest Physicians to Meet.**—The Southwest Missouri Medical Society will held its annual session at Springfield, April 30 and May 1, under the presidency of Dr. Columbus J. Pike, Willard.

**Would Avoid Publicity.**—The Shelby County Medical Society at its March session adopted resolutions requesting editors of newspapers of the county not to use the names of any regular physician or any consultant, either in reporting cases of sickness and accidents, or other happenings of a professional nature.

**Society Incorporated.**—The Buchanan County Medical Society has made application to the circuit court through Drs. Joseph J. Eansbach, president; William F. Goetze, secretary, and John M. Bell, treasurer, for a pro forma decree of incorporation. The organization will include physicians and surgeons of Buchanan and Andrew counties.

**Personal.**—Dr. John E. Locke has been elected mayor of Webb City.——Dr. Edgar J. Geisinger has been appointed postmaster of Unionville.——Dr. C. Vilas Martin, Maryville, underwent operation for mastoid abscess recently, and is reported to be doing well.——The office of Dr. William P. Rowland, Bevier, was destroyed by fire recently.

### St. Louis

**Subscriptions to Mount St. Rose.**—The campaign for the Mount St. Rose Hospital closed with subscriptions amounting to $38,805.85.

**Office Building for Physicians.**—Ground has been broken for the Lister Annex, the second and third floors of which will be devoted exclusively to offices of physicians. The addition will cost about $60,000.

**Hospital Addition Opened.**—St. Luke's Hospital has just opened its new addition of seventy-five beds. This with other improvements recently made at a cost of $200,000 gives the hospital a capacity of 175 beds.

**Psychopathic Court.**—A psychopathic ward has been established in connection with the juvenile court, and Drs. Lister H. Tuholske and Henry J. Scherck have volunteered to make free visits to the ward twice a week to examine the juvenile offenders.

**Reciprocal Concession.**—In Consideration of the privilege given by the United States Government to St. Louis to use the road through the government reservation at Jefferson Barracks to reach the Robert Koch Hospital and Infectious Hospital, south of the barracks, the Board of Hospital Commissioners has agreed in the event of an epidemic that the city shall take charge of government patients.

**Pure Ad Bill Passed.**—The municipal assembly at St. Louis has passed the "Pure Ad" bill, making fake ads illegal. The bill had the indorsement of the St. Louis Medical Society, the Advertising League of St. Louis and other civic bodies. The bill was opposed by optometrists, the publisher of a medical journal and some retail merchants. The bill fixes a penalty of $100 to $500 for violation, and applies to all forms of advertising.

**Prevention of Cancer.**—The American Association for the Prevention of Cancer will hold a meeting in St. Louis, May 1, in conjunction with the St. Louis Medical Society, at which Dr. William L. Rodman, Philadelphia, representing the American Medical Association, will deliver an address.——Dr. Frank J. Lutz, St. Louis, addressed a public meeting at Marshall, April 23, on the prevention of cancer.——At a public meeting of Gasconade-Maries-Osage Counties Medical Society at Owensville, April 9, Dr. Carroll Smith spoke on the cancer question.

**St. Louis Medical Society.**—At the meeting of the St. Louis Medical Society April 25, medical legislation was the principal topic discussed. Attorney-General John T. Barker considered the subject from the viewpoint of the lawyer, and Dr. William S. Allee, Olean, from the viewpoint of the physician.——June 6 the society will entertain Dr. Elias P. Lyon, dean of the Medical Department of the University of Minnesota, who formerly occupied a similar position at St. Louis University, who will deliver an address on medical education. At the same meeting, Dr. Henry M. Whelpley will give an historical sketch of the mound builders.

### NEW JERSEY

**Vetoes Rockefeller Institute Bill.**—The governor on April 13 vetoed the Colgate bill passed recently by the legislature to enable the Rockefeller Institute for Medical Research to establish a branch at New Brunswick. .The chief argument against the bill was made by a member of the Newark Vivisection Investigation League.

**Personal.**—Dr. William J. Hickson, Vineland, has accepted the position of chief of the Psychopathic Laboratory, Chicago. The laboratory will act as an auxiliary to the municipal courts, giving treatment instead of punishment to persons whose offenses were due to mental defects.——Dr. Francis H. Todd has resigned as member of the board of trustees of Paterson.——Dr. Alma Lapham Williston has been reappointed city physician and health inspector of Phillipsburg.

**Report of the New Jersey Sanitary Association.**—The thirty-ninth annual report of the New Jersey Sanitary Association has recently been issued. It is an interesting pamphlet of eighty-seven pages containing a number of valuable papers on sanitary subjects, among them being papers on "Food," by C. E. A. Winslow; "Vaccines and Serums," by Dr. Herbert D. Pease, New York; "Public Water-Supplies," by Henry M. Ogden, "Health Administration," by Homer Folks; "Open-Air Schools and Playgrounds," by Myron T. Scudder; "Disinfection," by Dr. Charles V. Chapin, Providence, R. I., and one on the "Promotion of Health and Sanitation by means of the Public Schools," by Dr. Calvin N. Kendall.

### NEW YORK

**Drug Bill Becomes Law.**—Governor Glynn has signed the Boylan bill restricting the sale of cocain and other habit-forming drugs. The bill not only aims to penalize those who sell drugs to victims of the habit, but also endeavors to protect the dealer against those who present false prescriptions by providing that the authority of the prescription must be verified if the prescription calls for more than 4 grains of morphin, 6 grains of codein or 4 drams of chloral. The bill provides for labeling each package with the name and address of the physician under whose name the prescription is sold and the name of the person for whom it is filled. No drugs may be sold except on prescription, and accurate data concerning amounts on hand and amounts sold must be kept. The bill becomes operative on July 1.

**Christian Scientists Besiege Albany.**—At the hearing on the McClelland bill which would make legal the work of any person "who ministers to or treats the sick or suffering by mental or spiritual means without the use of any drug or material remedies," more than two thousand Christian Scientists from all parts of this state and many from adjoining states were present. The Christian Scientists stated that in the Medical Practice Act passed in 1907 they had supposed that they were protected by the clause "or the practice of the religious tenets of any church," but as one of their number had been prosecuted and convicted by the medical societies they want the law made so plain that the courts cannot misconstrue it. Those who opposed the bill were Dr. J. Richard Kevin, Brooklyn, representing the Kings County Medical Society, Dr. Lewis K. Neff, New York City, of the State Medical Society, Dr. Abraham Jacobi, New York City, Dr. Joseph J. O'Connell, and Assistant State Commissioner of Education Downing, who insisted that the provisions of the bill are so broad that not only Christian Scientists but spiritualists, clairvoyants, mesmerists, hypnotists and neuropaths could practice under it.

### New York City

**More Typhus Fever.**—The White Star liner *Celtic* arrived in port with four cases of typhus fever on board and 554 steerage passengers were taken to Hoffman Island for observation——The steamship *Madonna* brought in three patients with the disease, Greeks who had fought in the Balkan War. Two hundred immigrants from this vessel were held for observation, bringing the number detained at Hoffman Island during the past week up to 1,108.

**Physical Examination of Push-Cart Peddlers.**—In compliance with a request from the mayor's bureau of licenses all applicants for licenses to peddle from push carts will be examined at the tuberculosis clinics of the Department of Health. No applicant whose sputum contains tubercle bacilli will be recommended for a license. Tuberculous persons who are no menace to others and who need outdoor employment will be given the preference in issuing the licenses.

**Advisory Health Council.**—Health Commissioner Sigismund S. Goldwater has organized an advisory council, composed of representatives of state and city departments, social and philanthropic organizations, business men's associations, labor unions, medical societies, women's organizations, etc. The following are those appointed chairmen of the departmental committees: Bailey B. Burritt, food inspection; Louis I. Dublin, records; Dr. Simon Flexner, laboratories; Homer Folks, child hygiene; Dr. Lee K. Frankel, public health and education; Dr. John H. Huddleston, infectious diseases, and Prof. C. E. A. Winslow, sanitation.

**Social Service and Health Department Hospitals.**—Beginning April 1, 1914, nurses from the Bureau of Infectious Diseases are visiting all cases of scarlet fever, measles and diphtheria discharged from the hospitals of the department to determine the condition of the patient on discharge and the home conditions of the family. Advice is given in regard to the care of the convalescent patient and if aid is necessary the family referred to the proper charitable organization. At least one additional visit is made after the expiration of the incubation period of the disease in question to ascertain if any secondary cases have developed.

**College and Hospital Affiliated.**—Announcement has been made that the trustees of Columbia University and the managers of the Presbyterian Hospital have reorganized the administration of the scientific and therapeutic work of the hospital so as to provide for a single responsibility for both medical and surgical services. Dr. Theodore C. Janeway, Bard professor of the practice of medicine at the College of Physicians and Surgeons, has been appointed medical director of the hospital. Dr. George E. Brewer, professor of surgery at the college, has been appointed surgical director, and Dr. William G. MacCallum, professor of pathology at the college, has been appointed pathologist to the hospital.

## NORTH CAROLINA

**Hospital Incorporated.**—The State Orthopedic Hospital has been incorporated at Gastonia. This is to be an institution especially for the care of indigent children.

**Anti-Mosquito Campaign.**—Greensboro instituted on April 1, a vigorous anti-mosquito campaign, under the leadership of Health Commissioner Dr. John T. J. Battle.

**Free Antityphoid Vaccine.**—The new Hanover County Board of Health announces that it will furnish free antityphoid vaccine to every citizen applying during 1914.

**District Society Meeting.**—The third annual meeting of the Ninth District Medical Society was held at Statesville. April 10. Dr. John E. McLaughlin, Statesville, was elected president.

**Personal.**—The drug store and office of Dr. Samuel B. Medford, Clyde, was destroyed by fire April 13.——Dr. Arthur W. Callaway has succeeded Dr. Francis J. Cleminger as a member of the Asheville Board of Health.

**Ambulance Corps Organized.**—The Ambulance Corps of the National Guard of North Carolina has recently been organized, and the following officers have been commissioned and assigned to duty with the corps: Captain, Thomas F. Reynolds; lieutenants, John H. Mease, Francis M. Davis and Wiley C. Johnson, Canton, and J. Rufus McCraken, Waynesville.

**Seeks Cooperation for Death Reports.**—Dr. Platt W. Covington, Raleigh, is canvassing the state to secure active cooperation between physicians and undertakers in reporting deaths, under the new vital statistics law, passed by the last legislature, and which came into effect October 1 last. The attorney-general has indicated his willingness to prosecute offenders on information furnished by the State Board of Health.

## OHIO

**Combine Against Tuberculosis.**—At a meeting of the District Tuberculosis Hospital, representatives from the counties of Allen, Auglaize, Van Wert, Shelby and Mercer were present. An appropriation of $20,000 was made for erecting an additional cottage to the sanatorium near Lima, to accommodate twenty additional patients. The counties of Hancock, Hardin and Putnam made arrangements to participate in the maintenance of the institution. Drs. John W. Costolo, Sidney, and Oliver S. Steiner, Lima, were appointed members of the board of trustees to fill vacancies.

**Health Officers Under Civil Service.**—The recent act placing state and municipal employees under civil service received varying interpretations from city attorneys, some holding that city health officers were not in the classified list, others claiming that all employees of boards of health came under the provisions of this act. Attorney-General Hogan has recently ruled that all city health officers are in the classified list, and, if in office on Jan. 1, 1914, as a result of appointment, and after taking no examination, must submit to a non-competitive qualifying examination in 1914. This ruling does not apply to village and township health officers, who will be appointed as heretofore.

### Cincinnati

**Antituberculosis League.**—At the instance of the Antituberculosis League, the Commissioners of Hamilton County appointed Mrs. K. N. Britton as county nurse. This is a new feature in the work of the league, its nursing heretofore having been confined to the city limits.

**Rockhill Sanatorium.**—The increase in the applications for treatment at the new Rockhill Sanatorium has been so great as to necessitate the addition of nineteen rooms to the main building and five new bungalows. When completed the institution will accommodate thirty-five beds.

**Selection of Interns.**—The city hospital authorities have adopted a plan to select interns, not only from Cincinnati but from other cities as well. A list will be sent to the deans of all Class A and A+ colleges in the country, and from the results of these examinations, fourteen interns will be selected to take the places of those whose terms expire May 10.

**Ground Broken for Sanatorium.**—Ground was broken for the first of the new buildings of the Cincinnati Tuberculosis Sanatorium at Lick Run, March 31. Addresses were made by Mayor Spiegel, Safety-Director Dr. John R. Holmes and Judge Benton S. Oppenheimer, representing the Anti-Tuberculosis League. The sanatorium will cost about $345,000, and will accommodate three hundred patients.

**American Chemical Society.**—The American Chemical Society held its annual meeting in Cincinnati April 7-9. At the scientific sessions held in the auditorium of the university, much interest was evidenced in many of the papers. Dr. W. D. Bancroft's discovery of a "light without heat," or, in his own words, "the electrical firefly," excited much discussion and inquiry. Prof. Arthur L. Day related an account of his experience in the crater of an active volcano, and proved conclusively the futility of the old theories which declare the absence of water in volcanoes and the increase of temperature as the interior is approached. Professor Brooks, in a very excellent paper, discussed the "Economic Aspects of Gasoline Supply." The chemical studies of the pollution of the Ohio River, by Prof. Earl B. Phelps of Washington, was a paper of especial interest.

## PENNSYLVANIA

**Resign from Staff.**—Drs. Michael G. Dewey, Bonaparte P. Davis, Fred Fisher, Jr., and T. Wallace O'Brien have resigned from the staff of the Altoona Hospital.

**Tent City at Cresson.**—The state authorities have agreed to permit the placing of tents on the grounds of the State Tuberculosis Sanitarium, Cresson, for the use of indigent consumptives of Pittsburgh. The state has agreed to furnish food and medicine for these patients, and the city of Pittsburgh is to supply the tents. The cost of a tent for four people, with equipment, is $150. The necessary amount for four of these tents has already been subscribed.

**Eugenic Law Ineffective.**—Pennsylvania's Eugenic Law which became effective Aug. 1, 1913, is ineffective, since only once in the nine months that it has been in operation has it been tested before a court. April 15, friends intervened when an application was made for a marriage license by Charles F. Kramlish of Allentown, Pa., former president of the State Sportsman Association, and Judge Gromer issued an order returnable in ten days to show why a license should not be refused on the score of feeble-mindedness. Mr. Kramlish is suffering from sarcoma of the brain.

### Philadelphia

**Scarlet Fever in School.**—The development of scarlet fever among five pupils at the Convent of Notre Dame, has led the Bureau of Health to make an investigation leading to the homes of all the pupils who attend the institution. The school was closed.

**Howard Hospital.**—Howard Hospital has outgrown its present quarters and contemplates the erection of a $200,000 addition. The new building 40 by 100 feet, facing on Broad Street, will be six stories in height, fireproof and of steel and concrete construction.

**Inter-Society Dinner.**—At the annual Inter-Society dinner of the Jefferson Medical College, April 1, the toastmaster was Dr. Francis Stewart, and the societies were represented by Dr. Edward P. Davis, William W. Keen, Hobart Amory Hare, H. A. Lander, Edward A. Spitzger, William M. Late Coplin and Francis X. Dercum.

**Health Department Warns against Rabies.**—The Health Department strongly advises the muzzling of all dogs on the streets and urges prompt attention to all bites of animals. Within the last week a number of persons in different sections of the city have been bitten by dogs, whose brains on examination have shown positive evidence of rabies.

**State Anti-Tuberculosis Society.**—At the annual meeting of the Pennsylvania Society for the Prevention of Tuberculosis, Drs. Joseph S. Neff, William Duffield Robinson and William

Charles White were elected vice-presidents; Drs. James M. Anders and Elmer H. Funk were elected directors, and Dr. Thomas McCrae was elected a member of the advisory council.

**Personal.**—Dr. Arthur J. Davidson has been elected associate in orthopedic surgery in Jefferson Medical College.——Dr. William W. Keen was elected president of the International Surgical Association at the closing meeting of the fourth congress of that association, held in New York, April 15——Dr. John R. Monihan, connected with the Philadelphia General Hospital, was the only applicant to qualify for promotion to assistant resident physician in the Bureau of Charities.

**Psychopathic Ward for Philadelphia Hospital.**—The proposed psychopathic ward for the examination and treatment of suspected cases of insanity, at the Philadelphia General Hospital, was approved by the State Board of Health and Charities April 8. The last legislature appropriated $10.000 toward its establishment, and plans are now being made to take temporary care of at least 140 persons. Persons suspected of mental disease or mental defectives will be sent to this ward and if found to be insane after a period of thirty days observation, will be sent to the Norristown State Hospital.

## SOUTH DAKOTA

**State Society Meeting.**—The annual meeting of the South Dakota State Medical Association will be held in Watertown, May 26-28, under the presidency of Dr. Fred A. Spafford, Flandreau.

**New Hospital.**—Dr. Martin M. Grove has incorporated the Dell Rapids Hospital Company with a capital stock of $20 000, and has selected the site and expects to have the building completed by September 1. It will have a capacity of thirty patients.

## WISCONSIN

**Sanatorium Notes.**—The portable cottages prepared for the patients at the Blue Mound Sanatorium, which was burned recently, have been completed and now accommodate thirty patients.——The state sanatorium board met in Detroit, March 24, and began active operations toward the construction of a state sanatorium for tuberculosis at Sanford.

**Personal.**—Dr. Adolph Roos. Oshkosh, sailed for Europe April 21. His practice in Oshkosh has been taken over by Dr. Edwin F. Bickel.——Dr. Forrest F. Slyfield, Algoma, has been appointed medical examiner in Algoma of the State Life Fund.——Fire in the home of Dr. William A. Fulton, Burlington, March 30, caused a loss of several hundred dollars.——Dr. Edmund H. Mensing, Milwaukee, has been appointed clinical assistant at St. Mary's Hospital, Rochester, Minn.——Dr. Gerhard A. Bading has been elected mayor of Milwaukee.

## GENERAL

**Railway Adopts Health Regulations.**—The Cotton Belt Route has inaugurated physical examinations of its dining-car employees for the determination of communicable diseases. These examinations will be held every ninety days.

**Officials Return to Canal Zone.**—Dr. S. T. Darling, chief of laboratory, Ancon Hospital, and Major Robert E. Noble, Med. Corps, U. S. Army, have returned to the Isthmus from South Africa, where they accompanied General Gorgas, to investigate health conditions among the laborers on the Rand.

**Canal Zone Personal.**—Surg. James C. Perry, U. S. P. H. S., who resigned as chief quarantine officer, March 31, remained on request in an advisory capacity until April 14, when he sailed for the United States. He has been granted a leave of absence for one year, which he will spend in travel.——Lieut. Henry P. Carter, M.C., U. S. Army, new health officer of the Canal Zone, arrived from New Orleans, April 1.

**Clean Milk.**—At the annual meeting of the Commission of Milk Standards, in New York City, April 13 and 14, an organization was formed known as the Clean Milk Association, with the general objects of cooperating with producers, distributors and sanitary authorities in the production and distribution of clean milk; providing the public with clean milk by the sanitary control and handling, irrespective of treatment by pasteurization or otherwise; promoting of clean milk in accordance with the standards presented by the National Commission on Milk Standards, and approved by the American Health Association; promoting the financial welfare of the producer by organization and cooperation; regulating of the market value of clean milk by basing payments on the sanitary condition of milk as well as on the butter fat; educating the consumer to give recognition to the value of cleanliness and sanitary value in purchasing milk; condemning unfair methods of competition; and unfair means for promoting legislation, and collecting, tabulating, studying and discussing facts pertinent to the clean milk industry and to the welfare of the milk-consuming public.

***Bequests and Donations.***—*The following bequests and donations have recently been announced:*

The Presbyterian Hospital, New York City, about $125,000 by the will of Mrs. Nellie M. Noe.

Methodist Episcopal Hospital, Brooklyn, $5,000 by the will of William P. Sanford.

University of Pennsylvania, a residuary fund of $1,500,000 for the benefit of the University Library and University Hospital, department of dermatology, archeology, paleontology; College of Physicians of Philadelphia University Hospital $10.000, for the endowment of ten beds for the treatment of skin diseases; $25,000, for the maintenance of a dermatologic museum, by the will of Dr. Louis A. Duhring.

Chicago Charity Hospital, Chicago Home for the Friendless, and Chicago Home for Incurables, each $75,000 after the death of the widow of the late Kenneth S. Walbank.

Aid Association of the Philadelphia County Medical Society, $5,000, by the will of Dr. Louis A. Duhring.

Wesley Hospital, Chicago, a donation of $1,000,000 in memory of William Deering and Abbey Deering Howe, by James Deering.

**European Surgeons Tour United States.**—About seventy-five European surgeons who were present at the meeting of the International Surgical Congress in New York City are making a tour of the United States, including eastern cities, Chicago and Rochester, Minn. They have been entertained with clinics, banquets and receptions in many cities. Among the more distinguished visitors are: Germany—Drs. Brüning, Giessen; Franke, Brunswick; Garré, Bonn; A. T. Jurasz. Leipsig; Kraske, Freiburg; Kümmel, Hamburg; Lexer, Jena; Neuber, Kiel; Prof. A. Rehn, Frankfurt; Dr. Eduard Rehn, Jena; Ritter, Posen; Sonnenberg, Berlin; Steinthal, Stuttgart; Tölken, Zwickau; Tschmarke, Magdeburg; Witzel, Düsseldorf. Austria—Drs. Böhler, Fetschen; Doberauer, Komotau; Koller, Neutitschein; Ranzi, Vienna; Salzer, Vienna; Schloffer, Prague; Sparman, Vienna; Ullmann, Vienna; Zahradnicky, Nemecky Brod. Belgium—Drs. Depage, Brussels; Lambotte, Antwerp; Lorthoir, Brussels; Mayer, Brussels; Charles Willems, Ghent. Denmark—Dr. Oscar Bloch, Copenhagen. Finland—Drs. Faltin, Helsingfors; Granberg, Wiborg; von Bonsdorff, Helsingfors; von Numers, Wiborg. France—Drs. Hartmann, Paris; Michon, Paris; Morestin, Paris; Proust, Paris; Verchère, Paris; Villard and Durand, Lyons. Hungary—Drs. Manninger and von Kusmik, Budapest. Italy—Drs. Gosio, Turin; Gangitano, Naples; Lerda, Turin; Ceci, Pisa. Norway—Dr. Henriksen, Skien. Holland—Drs. Bierens de Haan, Rotterdam; Frank, Zwolle; Goedhuis, Deventer; Koch, Groningen; Meine Rutgers, The Hague; Renssen, Arnheim; Rotgans, Amsterdam; Schoemaker, The Hague; Van der Hoeven, Zutphen; Van der Horn, Nimègue; Westerman, Haarlem. Portugal—Drs. Bastos, Lisbon; Gentil, Lisbon. Roumania—Drs. Gerota, Bucharest; Jonnesco, Bucharest; Leonte, Bucharest. Russia—Drs. Bornhaupt, Riga; de Sawadski, Warsaw; Guinsbourg, St. Petersburg; Sapiejko, Odessa; Silberberg, Odessa; Slawinski, Warsaw. Servia—Dr. Soubbotitsch, Belgrade. Switzerland—Drs. de Quervain, Basle; Zollinger, Zurich.

**Alleged Cruelty to Dogs in Experiments.**—April 15, Dr. Joshua E. Sweet, one of the six members of the faculty of the medical school of the University of Pennsylvania, under indictment charged with wanton cruelty to dogs after vivisection, was on trial before Judge Bregy in quarter session court. Dr. Sweet entered a plea of not guilty. During the first day two witnesses appeared against the defendant. They were Samuel S. Geyer, who from Dec. 1. 1906, to April 8, 1913, was employed, so he said, as an assistant to Dr. Sweet, and was in charge of the kennels; and Miss Henrietta Ogden, a member of the Society for Prevention of Cruelty to Animals. Geyer described in detail the cases of half a dozen dogs who had undergone vivisection and been returned from the operating tables to his care. When it came to his cross-examination, Geyer was forced to admit, when testifying, that 1,000 dogs, on an average yearly, and 1,000 other animals went through his hands; that he, himself, and for his own profit, kept 800 dogs in the kennels, fed them on the same garbage food, and sold them. He was also forced to admit that the university provided an ice chest to preserve food for dogs and that milk was kept in it. Miss Henrietta Ogden, according to her testimony accompanied by Geyer and her sister, visited the kennels on several occasions, and witnessed the sufferings of the dogs who had undergone operation. She exhibited a series of notes of these observations and testified on direct examination that they were the originals. Under cross-examination, however, she was forced to admit that the notes shown were copies and she fainted when Murdock Kendrick, counsel for Dr. Sweet, attacked the whole fabric of her testimony. Just as the court adjourned, counsel for the defense invited the jury, subject to the permission of Judge Bregy, to view the university kennels, stating that conditions there were the same as when Miss Ogden made her investigations and Geyer was kennel keeper. April 16 the defense began its case, and it was patent from the start that the trial did not concern itself with vivisection as such, but simply with the charges of cruelty following experimental operations, referred by the Women's Pennsylvania Society for the prevention of cruelty to animals. Murdock Kendrick and Owen K. Roberts appeared for the defendant, while Assistant District-Attorney Maurer conducted the case for the commonwealth assisted by John R. Scott, attorney for the Cruelty Society. Despite the objections by Mr. Kendrick in an endeavor to have the court confine the case to specific instances of cruelty with specific dates and requiring technical knowledge of medicine on the part of the witnesses, Judge Bregy allowed the prosecution all latitude in the admission of testimony, overruling the attorney in nearly every instance.

In opening the case Mr. Maurer explained to the jury that the commonwealth would prove that the animals to be operated on were kept in small wire-screened cages, with hard cement floors, and that, after being taken out and operated on, they were returned to these and allowed to remain suffering from wounds and effects of the operations; that they did not receive any further medical attention, nor were they furnished with proper food, what they got to eat consisting chiefly of garbage, often in a state of fermentation, and that they were neglected sometimes for several days suffering a lingering and torturous death.

Dr. Sweet, the physician under trial, was the first witness for the defense. He said he had been connected with Rockefeller Institute, New York City, was assistant professor of surgical research at the university, and had charge of the animal house, built a few years ago at a cost of $35,000 and suitably equipped for sanitary purposes. He inspected the house every day. He denied fermented food was given to dogs, which was in the form of table scraps from the university dining-room table scraps and said the nourishment they received was the best for their recovery after operations. Later witnesses corroborated this testimony. The various charges of cruelty specified in the indictments he denied. Bandages, he testified, on dogs which had abdominal incisions, were insanitary and non-conducive to proper recovery. He had taken every precaution to prevent infection. Sawdust was the best bed for the dogs, not cotton or woolen cloth, he testified. The subjects were rendered insensible to pain before all operations in which they might suffer. Geyer, the kennel keeper, he said, had never complained of the quality of the dogs' food. Under cross-examination, he denied that he or any one under his direction or with his knowledge had ever starved a dog or other animal for experimental purposes. Other witnesses for the prosecution were Miss Bertha Ogden, sister of the woman who fainted; Patrolmen Boyd and Casey of the Thirty-Second Street and Woodland Avenue police station, who testified to the quality of the food Geyer procured from the University Hospital for the dogs; Miss Mary Walker Pooley and Miss Mary Vail, both of whom had visited the animal house in search of lost pets; Joseph Conner, another pet seeker, brought into court so ill that he could hardly stand and carried out by two attendants, and Dr. James C. Corlies, president of the New Jersey State Humane Association and a veterinary surgeon of Newark.

April 17 the defense presented among others the following witnesses: Dr. W. W. Keen, emeritus professor of surgery at the Jefferson Medical College; Dr. Edward A. Martin, professor of surgery at the University of Pennsylvania; Dr. Allen J. Smith, pathologist at the university; Dr. Edgar Fahs Smith, provost of the university; Dr. Charles H. Frazier, professor of clinical surgery, and Dr. Alfred Allen, neurologist. Dr. Sweet's case went to the jury at 2:40. Judge Bregy's charge to the jury follows in part: To indicate a view on the part of these physicians that these operations on the dogs were made for scientific purposes, to obtain information for the alleviation of human suffering, I charge you that the law of Pennsylvania does not allow pain and suffering, torment or torture to be inflicted on dogs for any purpose except for the relief of the suffering of the dog itself. They have no right to torture the dogs or violate the law, as I have read it to you, for the purpose of obtaining scientific information. The law says that any person who does a thing, as I have read it to you, that is, that a person that is guilty of wanton and cruel torture of an animal, shall be guilty of a crime. The law does not say they shall not be guilty if they do it for a scientific purpose. Scientific purpose does not excuse cruelty. The physicians and surgeons other than Dr. Sweet under indictment for cruelty are: Drs. Alfred N. Richards, Allen J. Smith, Richard Mills Pearce, Alonzo E. Taylor and Edward T. Reichert. Since Dr. Sweet is the only defendant placed on trial it is generally believed the verdict in his case will decide the course to be taken in the charge of the others. The jury retired, and after forty-six hours of deliberation, reported to the judge that an agreement could not be reached, and was thereon dismissed. It is understood that a majority of the jurors was in favor of complete vindication of the defendants.

## FOREIGN

**Plague in Havana.**—Under date of April 16 it was reported from Havana that the plague epidemic was under control, no new cases having developed during the previous forty-eight hours, though one suspect was transferred to a hospital. At least twelve cases have been reported during the epidemic. Early in the epidemic after an examination of several thousand rats with no evidence of infection it was concluded that the disease was spread by fleas carried in sacks of sugar. All ports on the Gulf and South Atlantic coast have adopted extra precautions against the entrance of the disease, and rat surveys and rat extermination are the order of the day.

**Good Sanitary Conditions in Latin America.**—Dr. R. E. Swigart, medical director of the United Fruit Company, who has recently returned to New Orleans from a trip of inspection in Latin America, says that the Atlantic Coast districts of Colombia, Panama, Costa Rica, Spanish Honduras and Guatemala are in better sanitary condition than ever before in history. He attributes the excellence of the health conditions largely to the efforts of the United States Public Health Service and to those of the United Fruit Company in protecting the health of its employees. The company has built hospitals at Tela and Santa Marta, which will be opened next month. A third hospital is being built at Truxillo.

**School of Tropical Medicine in India.**—Consul-General, James A. Smith, at Calcutta, reports that the building of the new school of Tropical Medicine at Calcutta was begun February 24. The government of India provided $195,000 for the site and laboratory, and is to contribute to the support of the school. It is said that tropical diseases cause over one-third of the deaths in Calcutta and a large proportion of the deaths in the whole country. An appeal has been issued by the promoters of the institution for financial support and students from all over the world are desired. The attention of research institutions in the United States is particularly called to the advantages of this institution for study and research by students of tropical diseases under scholarships endowed by individuals or by institutions. It is expected that the school will be completed and in running order within a year. Communications in regard to the entrance of students should be addressed to Lieut.-Col. Leonard Rogers, I. M. S., Medical College, Calcutta.

## CANADA

**New Officers.**—McGill University Medical Society at Montreal, April 3: president, Dr. George E. Armstrong; secretary, Archie Desbusay.

**License Examinations.**—Examinations for license to practice medicine in the province of Alberta commenced April 24. They are being conducted by the Senate of the University of Alberta. The license to practice is issued by the College of Physicians and Surgeons of which Dr. George Macdonald, Calgary, is registrar.

**Paratyphoid Epidemic.**—An epidemic of paratyphoid fever is reported from sections in the province of Quebec in the neighborhood of the Richelieu River. Out of a population of seven thousand in the county of Savrevois, two thousand persons have contracted the disease and several deaths have occurred. The Richelieu River is blamed as the source of the infection.

**Medical Inspection of Schools.**—President Dr. Herbert J. Hamilton, Secretary Dr. W. Harley Smith and Drs. Richard A. Reeve and George D. Young, all of Toronto, recently waited on the Hon. Dr. Sebert R. Pyne, Minister of Education in the Ontario government, as a deputation from the Academy of Medicine, urging that a system of medical inspection of schools be adopted throughout the province of Ontario.

**Postgraduate Instruction at McGill.**—The medical faculty of McGill University announces that it will have instruction for graduate students from June 1 to June 13, inclusive. The work will be essentially clinical, and the visiting physician will be offered the best facilities in the indoor and outdoor departments of the Montreal General, Victoria and New Maternity hospitals. Special courses may be arranged in the laboratories of the schools and in the hospitals.

**Personal.**—Dr. Charles Sheard, Toronto, has returned from a visit to New Orleans.——Dr. Forbes E. Godfrey, Mimico, Ont., has returned from a trip to Panama and the West Indies.——Drs. James A. and Lorne Robertson, Stratford, Ont., are taking a trip to the Mediterranean.——Dr. J. R. Dutton has been appointed superintendent of the Alexandra Contagious Diseases Hospital, Montreal.——Dr. Hibbert W. Hill, London, Ont., has been appointed executive secretary of the Minnesota Public Health Association.——Dr. Francis A. R. Gow, Halifax, N. S., has been appointed chief medical officer and inspector of that port.——The salary of Dr. Seraphin Boucher, health officer of Montreal, has been increased from $4,000 to $5,000.——Dr. Leo E. Pariseau has been appointed medical officer of health of Sherbrooke, Que.

**Hospital News.**—The cost of maintaining patients in the Vancouver General Hospital advanced in 1913 to $2.11 per patient per day. In 1912 it was $1.98. Just how this hospital has grown in the past twelve years is seen from the fact that at that time it contained 45 beds with a staff of 29. The hospital has now 415 beds and a staff of 205; and the building is to be further enlarged during the coming summer. ——A new hospital is to be built at Nakusp, B. C.——A hospital is to be established at Summerland, B. C., at a cost of $6,000. A development company has donated the site valued at $2,300.——The Royal Inland Hospital at Kamloops, B. C., treated 1,287 patients in 1913, at a cost of $1.95 per patient per day.——A hospital is to be built at Estevan, Sask.——The Northern Saskatchewan Hospital for the Insane has been completed at Battleford at a cost of $1,250,000. It is beautifully situated, has extensive grounds and a farm of 2,000 acres. It has accommodation for 600 patients and has a staff of 55 persons. Patients were removed to this new institution from the old hospital in Brandon late in February.——The Regina (Alta.) General Hospital is being enlarged. The new wing will be ready for occupation in July. Last year 1,976 patients received treatment. One hundred and fourteen deaths occurred. Of 150 patients in the isolation department, five died.——New hospital regulations have been adopted in the province of Alberta. Every municipality where a patient has been in residence for three continuous months is made responsible for the maintenance of that patient if unable to pay. The new regulations also require fully equipped clinical laboratories in every hospital, proper means for disinfection and a mortuary. Each hospital shall also provide for the care of cases of acute delirium and pulmonary tuberculosis, unless there is a sanatorium established in the province.——Manitoba will hereafter give $1.50 per patient per day to all hospitals of that province instead of $1 as formerly, that is, for indigents. The Manitoba government has also guaranteed the bonds of the Winnipeg General Hospital to the extent of $400,000.——Notre Dame Hospital, Montreal, is to be enlarged. Last year the number treated totaled 2,572 patients. In the St. Paul Annex for Contagious Diseases, 1,314 patients were treated.——Quebec is to have a new Isolation Hospital at a cost of $90,000.——The Canadian Copper Company at Copper Cliff, Ont., has finished a new hospital to replace the building destroyed by fire in 1912. The cost of the new institution was about $200,000. Dr. Albert G. McAuley is the superintendent.——The Guelph (Ont.) General Hospital is to be enlarged at a cost of $44,000, of which amount $28,000 was provided by a recent by-law.——Hamilton, Ont., has appropriated a site of 15 acres for a new hospital on the top of the mountain at that city.——The new wing in course of construction at the Kingston General Hospital is to have accommodation for forty patients.——Prince Edward Island Hospital now comes in for a bequest of one-half of the estate of the late Mr. Starr of Litchfield, Conn., the legatee who had been receiving the income having died.——Newcastle, N. B., is to have a new hospital at a cost of $30,000.

## LONDON LETTER

LONDON, April 10, 1914.

### Fly Prevention

The part played by flies in the transmission of disease is receiving considerable attention from health authorities in this country. A letter signed by 123 health officers has been published in the daily press appealing to the public to cooperate with the health authorities in destroying the breeding-places of flies. It is pointed out that summer diarrhea is probably conveyed by the common house-fly. It is useless to try to tackle the problem by attempting to kill individual flies, because of the enormous offspring of one female. Each householder must see that his back yard is scrupulously clean and his dustbin protected. Manure, when practicable, should be dug in at once. If the heap has to be kept, the top and sides should be covered with a layer of earth. The children in the schools should be taught the life history of the fly and its capacity for harm. The Boy Scouts could undertake the supremely useful work of tracking down the breeding-places of flies and notifying the health authorities. Moving pictures could help even more than they do at present by films showing the full life history of the insect and the damage it does.

### Death After Swallowing Radium

An inquest has been held on a woman who died after an operation to recover a tube of radium which she inadvertently swallowed. She was under treatment for deafness. A metal cylinder containing radium and mesothorium was inserted alternately into each ear and nostril, and on an attempt being made to withdraw the cylinder from the left nostril was found to have disappeared. [illegible] vealed it in the patient's stomach, and [illegible] an operation was decided on. This was successful, but shortly afterward the patient collapsed and died. Death was attributed to the injection of atropin and scopolamin before operation.

### The Royal Commission on Venereal Diseases

At the twenty-third meeting of the Royal Commission on Venereal Diseases, Miss Albania Broderick, representing the National Council of Trained Nurses, gave evidence. She thought that nurses had not been properly taught with regard to these diseases and that a special course was necessary. The education of the general public should include education of children in the laws of sex. This might be done in primary schools through the medium of botany, which would prepare the way for teaching later in regard to the human subject. Special teachers would be required until parents were sufficiently educated to instruct their own children. In this matter Miss Broderick considered that we were much behind other nations and referred to the work done by the Society of Sanitary and Moral Prophylaxis of the State of New York. A great factor in the spread of venereal disease was the ignorance in which women had been left. She condemned the practice of physicians treating women without letting them know the nature of the disease. Greater facilities were required for treatment, and evening clinics were specially important. Printed instructions should be given to outpatients dealing with the gravity of the disease and the danger of infecting others.

## BERLIN LETTER

BERLIN, April 3, 1914.

### Personal

Professor Ludloff has accepted the call to Frankfort-on-the-Main and has rejected the one to Berlin.

Professor Göppert of Marburg has accepted the position as director of the Institute of Anatomy at Frankfort.

Professor Bethe of Kiel has been appointed director of the Physiological Institute of that place.

Professor Emil Abderhalden, physiologist of the University of Halle, has declined the call to lecture in New York next fall. He will also not accept the summons to deliver courses at the Association of American Agricultural Colleges and Experiment Stations in Washington.

### The Friedmann Tuberculosis Remedy

In the number of the *Deutsche medizinische Wochenschrift* just issued, the well-known tuberculosis expert and collaborator of Professor Orth (Prof. Lydia Rabinowitsch), publishes an interesting article on the Friedmann remedy, chiefly on the basis of bacteriologic investigation. Like Vulpius and Laubenheimer, she found the remedy contaminated. Of ten samples, six showed, from a microscopic examination or by culture, the presence of other bacteria from non-acid-fast bacilli or cocci, and, in some cases, streptococci. Contaminations were discovered in ampules not older than forty-eight hours, which was the time limit imposed by the manufacturer. The age of the preparation, however, did not seem to affect the contamination. The Friedmann remedy, therefore, cannot be regarded as entirely harmless. While there is some variance in the races cultivated from the Friedmann material in the first generation, the differences disappear gradually after their cultivation. The growth of the Friedmann bacilli at incubator temperature and their avirulence for turtles were calculated to indicate that the characterization of the Friedmann culture as a turtle tubercle bacillus is not entirely correct. A number of experiments were made on guinea-pigs with the Friedmann culture derived from an American source (Barnes), as well as with the races isolated by the author from the Friedmann material, to determine the question of avirulence as asserted by Friedmann. Part of the guinea-pigs lived for months without showing any changes suspicious ot tuberculosis at necropsy. Another part, which were inoculated at the same time, showed more or less pronounced foci, suspicious of tuberculosis, in the enlarged glands, liver or spleen from which acid-fast bacilli could be recovered again in pure culture. The suspicious foci, on reinjection, however, produced no tuberculous process. In connection with the second class, there was one series of four guinea-pigs which were injected in November with various amounts of a six-day culture obtained from Ampule 2. After three months one of these died with what proved to be, on examination, a typical picture of an injection tuberculosis produced by a mammalian tubercle bacillus of feeble virulence. The three other guinea-pigs injected at the same time showed, when killed a few days later, no pronounced tuberculous changes.

In Germany, as well as in America, inoculation abscesses have been reported not only on application of the commercial preparation, but also in cases treated by Friedmann himself. No sufficient investigation has been made to determine whether the contamination of the injection material on the market is responsible for these abscesses or whether they were due solely to the action of the acid-fast bacilli. Furthermore, it was shown by numerous experiments on guinea-pigs and rabbits that even the uncontaminated remedy may have a pathogenic action. Dr. Rabinowitsch emphasizes on this account the experiences of all experimenters which have shown that races of tubercle bacilli of slight virulence may, from hitherto unknown reasons, suddenly assume an increased virulence. For this reason, the proposition to inject healthy persons for the purpose of prophylaxis should, in her opinion, be most emphatically condemned. She agrees with Vulpius and Laubenheimer that remedies of this sort should be produced and distributed only under the control of the state. It would be still better, at any rate for the patients, if such remedies should be subjected to an exact experimental and clinical trial before they are given to the public.

Professor Rabinowitsch hesitated for some time before publishing these results in view of the fact that Kraus had proclaimed the complete harmlessness of the Friedmann remedy and of the fact that Schleich had accused her of being an opponent of Friedmann and his discovery, but after the report of unfavorable results both in America and Germany, she believed that the publication of her results ought not to be delayed longer. Her investigations of the unfavorable facts in reference to the pathogenesis of the Friedmann culture should be the more interesting, inasmuch as Friedmann in reply to the publication of Vulpius and Laubenheimer has stated that the complete harmlessness of the remedy has been established according to a report given by Ehrlich to the government. It is well known that Ehrlich received from Friedmann, not his remedy, but the culture of the turtle tubercle bacilli which he investigated for its harmlessness. The remedy, as the investigations of Vulpius and Laubenheimer show, may be contaminated to a great degree with other germs, while this need not be true of the acid-fast Friedmann race of bacilli. The remedy and the culture are not at all identical, and this should be emphasized again, although attention has already been drawn to this difference, and even if the race investigated by Ehrlich proved to be harmless, this is no indication that the varieties of the Friedmann bacillus obtained by various workers from the pus of abscesses as well as from the commercial injection material will show the same behavior in animal experiments.

Standardization should naturally be applied not only to the Friedmann remedy, but also to that recommended by Piorkowski, as well as to the preparation of turtle tubercle bacilli of Karfunkel, which was used for a short time in Berlin and later, like the Friedmann remedy in the State of New York, was forbidden by the health department.

### The Number of Woman Physicians in Germany

The number of woman physicians in Germany is steadily increasing. In 1908 there were but 55, two years later 102, and in 1913 the number grew to 195. Of the larger cities, Berlin leads with the greatest number. In 1910, there were 32; in 1911, 34; 1912, 45, and in 1913, 56 woman physicians. Munich had in 1913, 13; Breslau, 10; Hamburg, 9; Frankfort and Dresden, 7; Mannheim, 6; Hanover, Cologne and Stuttgart, 4; Leipsic and Düsseldorf, 3 woman physicians.

## Marriages

John Alexander Powers, M.D., to Miss Stella Kelley, both of Warrensburg, Mo., at Kansas City, Mo., April 4.

Lee Perry Paull, M.D., to Mrs. Lillian Thorp Minahan, both of Los Angeles, at Riverside, Cal., March 31.

Richard A. Kearney, Asst. Surg., U. S. P. H. S., to Miss Edmonia Adams at Washington, D. C., April 21.

Donald H. Noble, P. A. Surg., U. S. N., to Miss Ann Elizabeth Leary of Washington, D. C., March 14.

Henry Albert Slusser, M.D., to Miss Edith Crummie, both of Dayton, O., at Detroit, Mich., April 6.

Winfield Scott Pugh, Jr., P.A. Surg., U. S. N., to Miss Irma May Poka of San Francisco, April 6.

Ward Hughes Powell, M.D., Minden, N. D., to Miss Gerda Hasselbach of Omaha, Neb., April 7.

Arngt A. Solberg, M.D., to Miss Olga Grotte, both of Ispheming, Mich., April 4.

Alexander C. Flack, M.D., to Miss Lena Koch, both of Fredonia, Kan., April 11.

Jacob Bressler, M.D., to Miss Marian Schlesinger, both of New York City, April 7.

## Deaths

**Joseph L. Geyer, M.D.** Starling Medical College, Columbus, O., 1869; a Fellow of the American Medical Association, and one of the founders of the Muskingum County, Ohio Medical Society; a member of the Baltimore and Ohio Railway Surgeons Association, and International Association of Railway Surgeons; for more than forty years local surgeon at Norwich, O., for the Baltimore and Ohio System; a veteran of the Civil War; died at his home in Norwich, April 3, from pneumonia, aged 74.

**John Devette T. Hand, M.D.** New York University, New York City, 1881; a member of the Medical Society of the State of New York; president of the village of New Berlin, N. Y.; formerly a member of the Chenango County Board of Supervisors; from 1908 to 1914 coroner of Chenango County; died in a hospital in Utica, N. Y., April 8, a week after a surgical operation, aged 55.

**John Alexander Fitz Hugh, M.D.** Western Reserve University, Cleveland, 1880; Hahnemann Medical College, Philadelphia, 1881; a member of the Massachusetts Medical Society; vice-president of the Essex North District Medical Society; consulting physician to the Anne Jacques Hospital, Newport, Mass.; died at his home in Amesbury, Mass., March 21, from diabetes, aged 59.

**Benjamin F. Duke, M.D.** University of Nashville, Tenn., 1871; a member of the Mississippi State Medical Association, and a Confederate veteran; formerly a member of the Mississippi State Board of Health, and for eighteen years quarantine physician of Jackson County, Miss.; died at his home in South Pascagoula, Miss., April 7, from hemorrhage of the lungs, aged 71.

**Francis S. Wilson, M.D.** Jefferson Medical College, 1870; a Fellow of the American Medical Association; for many years president of the Montgomery County (Pa.) Medical Society; lazeretto physician in Philadelphia during the Cleveland administration; died in his apartments in Jenkintown, Pa., April 7, from heart disease, aged 70.

**James E. Banks, M.D.** Tulane University, New Orleans, 1886; a member of the Mississippi State Medical Association; formerly president of the Lawrence-Jefferson Davis Counties Medical Association; and health officer of Jefferson Davis County; died at his home in Prentiss, Miss., January 28, from chronic nephritis, aged 52.

**William Stockton Wilson M.D.** Jefferson Medical College, 1861; a member of the Medical Society of New Jersey; surgeon of the One Hundred and Fifty-Fifth and Two Hundred and Tenth Pennsylvania Volunteer Infantry during the Civil War; died at his home in Newark, N. J., April 10, aged 75.

**Morris Parker Boyle, M.D.** University of Pennsylvania, Philadelphia, 1898; a Fellow of the American Medical Association; for several years resident physician of the Children's Hospital, Philadelphia; a practitioner of Glenside, Pa.; died at his home in that place, April 10, aged 37.

**Philip Mansfield Fitzsimmons, M.D.** University of Vermont, Burlington, 1892; a member of the Massachusetts Medical Society; formerly medical inspector of schools, library trustee and a member of the school board of Cambridge, Mass.; died at his home in that city, April 4, aged 56.

**William R. Mandeville, M.D.** Tulane University, New Orleans, 1871; one of the founders of the New Orleans Surgical and Medical Association; at one time Acting Assistant Surgeon, U. S. Army; an expert on yellow fever; died at his home in New Orleans, April 10, aged 62.

**William D. MacQuisten, M.D.** Michigan College of Medicine and Surgery, Detroit, 1891; a member of the Michigan State Medical Society and a practitioner of Detroit; died in St. Mary's Hospital in that city, April 6, from disease of the throat, aged 52.

**William Thomas Kirby, M.D.** Northwestern University Medical School, Chicago, 1897; a Fellow of the American Medical Association; and a private banker of Chicago; died in Wesley Memorial Hospital in that city, April 16, from tumor of the brain, aged 42.

**Warren S. Briggs, M.D.** Hahnemann Medical College, Chicago, 1879; formerly professor of surgery in the homeopathic department of the University of Minnesota, Minneapolis; died at his home in St. Paul, April 6, from double pleuropneumonia, aged 59.

**James A. Bainbridge, M.D.** Eclectic Medical Institute, Cincinnati, 1864; a pioneer resident of San Joaquin County, Cal., and a resident of Lathrop; died at the home of his daughter in Redwood, Cal., April 5, from senile debility, aged 81.

**Charles Arthur Darby, M.D.** Tufts Medical School, Boston, 1909; a Fellow of the American Medical Association; died in his private hospital in New Bedford, Mass., March 30, from abscess of the lung, following pneumonia, aged 37.

**Franklin Joseph Slough, M.D.** Homeopathic Medical College of Philadelphia, 1863; one of the oldest practitioners of Allentown; a trustee of the Rittersville, Pa., State Hospital; died at his home in that city, April 3, aged 72.

**Samuel C. Thomas, M.D.** Eclectic Medical Institute, Cincinnati, 1858; said to have been the oldest practitioner of Rush County, Ind.; died at his home in Milroy, Ind., about April 8, from cerebral hemorrhage, aged 81.

**Charles F. Lauer, M.D.** New York Homeopathic Medical College, 1863; a surgeon of volunteers during the Civil War and for three months in Libby Prison; died at his home in Brooklyn, N. Y., April 9, aged 74.

**Celia M. Haynes, M.D.** Cleveland University of Medicine and Surgery, 1877; an army nurse during the Civil War; one of the first women to practice medicine in Chicago; died in St. Luke's Hospital, April 9, aged 69.

**Duke C. Darnell, M.D.** University of Louisville, Ky., 1888; formerly chief surgeon of the Texas Short Line Railroad and Texas Pacific Railroad at Grand Saline, Tex.; died at his home in Vernon, Tex., April 4, aged 53.

**Herman Milbacher, M.D.** University of Munich, Bavaria, 1881; a member of the Illinois State Medical Society; and a well-known practitioner of Aurora; died in Long Beach, Fla., April 11, aged 63.

**Everett Herrick, M.D.** Jefferson Medical College, 1851; a Fellow of the American Medical Association; died at his home in New York City, April 1, aged 84.

**Ella Gertrude Smith, M.D.** Boston University, 1884; formerly of South Boston, Mass.; died at her home in Kearsarge, N.H., December 2, aged 59.

**De Elton Oliver Thayer, M.D.** Bennett Medical College, Chicago, 1910; of Ysleta, Tex.; died in a hospital in El Paso, March 30, aged 32.

**William H. Hawley, M.D.** Eclectic Medical College of the City of New York, 1851; died at his home in Penn Yan, N.Y., March 29, aged 89.

**William De Haven Eaches, M.D.** Hahnemann Medical College, Philadelphia, 1894; died at his home in Phoenixville, Pa., March 11, aged 41.

**Joseph P. Vickers** (license, Minn., 1887), a practitioner since 1861; died at his home in Barnesville, Minn., March 30, from senile debility.

**R. W. Garnett** (license, Mo., 1883), for fifty-eight years a practitioner of Chalk Level, Mo.; died at his home, April 1, aged 85.

**Harry F. Seaman, M.D.** Geneva (N.Y.) Medical College, 1871; died at his home in Alton, N.Y., February 16, aged 71.

# The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

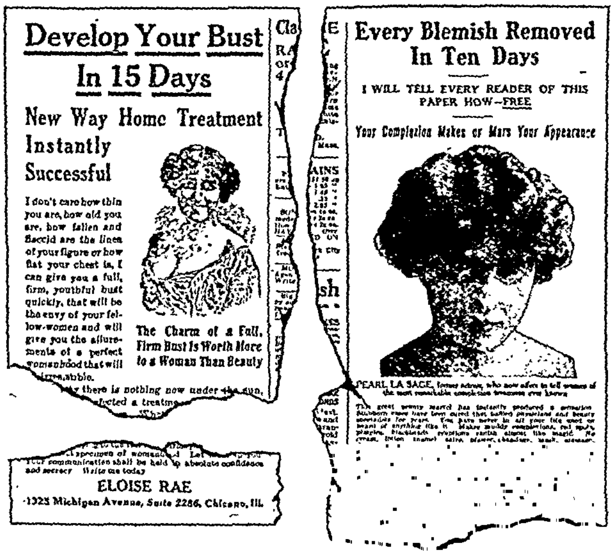
## PEARL LA SAGE COMPLEXION TREATMENT

### The Beauty-Making Potentialities of Washing Soda and Borax

Pearl La Sage conducts a fraudulent mail-order business from 2120 Michigan Blvd., Chicago. She separates the credulous from their cash via the "beauty treatment" route. No matter how atrocious your complexion, send your money to Pearl La Sage, and you will "have a perfect complexion in ten days." Realizing that people's tastes differ, Pearl promises:

> "You may have a pink, creamy or downy complexion just as you wish—and without any change in the treatment."

Physicians not infrequently find it impossible to help the complexion of women who are suffering from certain diseases. Realizing that the bad complexion is but a symptom and not a disease, the doctor naturally believes that the way to attack such troubles is to remove the cause. No such limitations hamper Pearl La Sage, although she admits that a bad complexion is frequently the result of bodily ills. Says Pearl:



Develop Your Bust In 15 Days

New Way Home Treatment Instantly Successful

I don't care how thin you are, how old you are, how fallen and flaccid are the lines of your figure or how flat your chest is, I can give you a full, firm, youthful bust quickly, that will be the envy of your fellow-women and will give you the allurements of a perfect womanhood that will irresistible.

there is nothing now under the sun, ected a treatm

The Charm of a Full, Firm Bust Is Worth More to a Woman Than Beauty

specimen of womanhood Let

Your communication shall be held in absolute confidence and secrecy. Write me today

ELOISE RAE

1325 Michigan Avenue, Suite 2286, Chicago, Ill.

Every Blemish Removed In Ten Days

I WILL TELL EVERY READER OF THIS PAPER HOW—FREE

Your Complexion Makes or Mars Your Appearance

PEARL LA SAGE

Typical advertisements of the Eloise Rae "bust developer" fake and the Pearl La Sage complexion treatment fraud. Both concerns seem to have originated in the fertile brain of C. E. Zimmerman.

> "In ten days you can be the subject of wild admiration by all your friends, no matter what your condition of health."
>
> "No matter what the cause, my ten day complexion treatment will give you a perfect complexion in ten days."

As is usual in such cases, it is probable that Pearl La Sage is really but a figure-head. The company, Pearl La Sage, Inc., seems to have been organized by three men:

C. E. Zimmerman.
A. O. Hupfeld, Jr.
James A. Hall.

C. E. Zimmerman seems to have been president of the Della Carson concern that exploited a fraudulent mail-order "beauty treatment." Zimmerman is said to have been made president of the Della Carson Company when the Leven Advertising Company took over the Della Carson business at the suggestion of some of the latter's creditors. Zimmerman also seems to have operated a fraudulent mail-order bust-developing business under the style Eloise Rae. One of the advertising assets in the Eloise Rae concern was a testimonial letter from the Leven Advertising Co. In this connection it is worth noting that a letter from the Hall-Stockton Printing

Co., signed James A. Hall, is used by the Pearl La Sage concern to prove its "responsibility, honesty and business standing."

There is of course, nothing to show that the Pearl La Sage concern is not the business of Pearl La Sage herself. The usual stock-in-trade of the mail-order faker is used to sell this "ten-day" complexion treatment: lying advertisements in such newspapers as are willing to become *particeps criminis;* booklets, freely illustrated with pictures of Pearl La Sage—pictures, by the way, which leave the casual observer in doubt as to whether it is a complexion treatment or a bust developer that is being sold; pictures, also, depicting hypothetical scenes, showing the dire effects of a bad complexion; and last, but not least, the inevitable follow-up letters.

The booklets of these mail-order fakers are an interesting study. In cases like those of Pearl La Sage, where the pocketbook rather than the health is involved, such brochures will be found to furnish a good deal of amusement. One of the Pearl La Sage booklets contains a double-page picture of a ball-room, showing all the ladies with good complexions dancing, while an unfortunate female in the foreground with a much besplotched face, is sitting out the dance alone. On another page is a pen drawing of a court scene, bearing the legend "The Divorce Courts Tell Their Tale of Complexion Value." A man and woman, presumably husband and wife, stand before the judge's bench, the woman with a bowed head—and, of course, pimply face—the man looking back toward the rear of the court room at an engaging young female with a clear skin.

Again: a tear-stained, specklefaced wife, gazes sadly at a grandfather's clock which points to a late hour. She sees, as in a vision, her belated husband dancing with a lady whose skin—and much is exhibited—seems to be all that could be desired. The legend reads: "The Neglected Wife has Learned Bitterly the Value of a Perfect Complexion." It is this picture, evidently, that is referred to in another pamphlet sent out by Pearl, when she says:

> "Think of the mad tragedies of wives sitting alone at home, watching the clock through tear-dimmed eyes, when they fear that some woman of a softer skin has coaxed their husbands from the paths of righteousness."

For fear that the reader may think this picture somewhat overdrawn, Miss La Sage gives the assurance:

> "This is not dream-stuff, good sister; it is true and you know it and I know it, and every woman who has felt the bite of jealousy and desertion knows it."

Nor are the men neglected: "Complexion means as much to a man as to a woman." Thus runs the legend to a pen picture showing a jaunty young fellow, with effeminate features and the skin of a baby, being gazed at longingly by several boy-struck girls.

### THE TREATMENT

"The price I have asked for my ten-day treatment is $10," but as Pearl wants your good will, she offers it to you at the ridiculously low price of $3. Wait a few weeks, however, and a "follow-up" letter will give you a chance to get the treatment for $2. Further hesitation brings the offer down to $1 with a free copy of Miss La Sage's "Ten Stage Secrets of Beauty" thrown in for good measure.

Those who send the money for the "New, Different, Scientific Treatment" of Pearl La Sage, receive 30 pale pink tablets and the same number of capsules, containing a coarse white powder. The recipient is told not to swallow the tablets nor the capsules. To change a sallow, pimply skin into a perfect complexion in the short space of ten days: Dissolve one tablet in a quart of warm water and splash the water on your face at night; empty the contents of a capsule into a quart of cold water and splash your face again in the morning! That is all!

One point that will tend to give an air of mystery to the scheme is the fact that when these pale pink tablets or white powders are dissolved in water, they produce a handsome carmine liquid. The chemist's report which follows, explains this phenomenon:

### A. M. A. LABORATORY REPORT

The Pearl La Sage Complexion Treatment consists of capsules and tablets of each of which there are about thirty. The contents of the capsules consisted of a coarse, white, odorless powder which had a strongly alkaline taste and which incompletely dissolved in water to form a red, alkaline solution. The contents of 10 capsules weighed 12.7386 gm. or about 20 grains for each capsule. The tablets were a pale pink color and ten of them weighed 7.5160 gm. or nearly 12 grains each. The tablets were partially soluble in water to form a red solution having a strongly alkaline taste. Qualitative tests demonstrated the presence of a borate, a carbonate, sodium and phenolphthalein in the contents of the capsules. A borate, a carbonate, sodium, phenolphthalein and powdered talc were found in the tablets. Other substances were not present in appreciable amounts. Quantitative analysis of the two preparations gave the following results:

| | CAPSULES | TABLETS |
|---|---|---|
| Sodium carbonate ($Na_2CO_3$) | 68.10 | 53.98 |
| Sodium borate ($Na_2B_4O_7$) | 10.42 | 23.60 |
| Phenolphthalein | 4.05 | 5.02 |
| Talcum | | 3.28 |
| Water (loss at 100 C) | 17.06 | 16.19 |

From the results of the examination it is concluded that the contents of the capsules are composed essentially as follows:

| | |
|---|---|
| Monohydrated sodium carbonate ($Na_2CO_3.H_2O$) | 80 parts |
| Dried sodium borate (dried borax) | 16 parts |
| Phenolphthalein | 4 parts |

The results of the examination indicate that the composition of the tablets is about as follows:

| | |
|---|---|
| Monohydrated sodium carbonate ($Na_2CO_3.H_2O$) | 63 parts |
| Dried Sodium borate (dried borax) | 29 parts |
| Phenolphthalein | 5 parts |
| Talcum (talc) | 3 parts |

In addition to the "complexion treatment" Pearl La Sage sends with it some of what she calls laxative "pills." These were small, brown, tablets. Preliminary tests indicated that they contained some anthraquinone bearing drug, probably extract of cascara and a trace of an alkaloid, probably strychnin.

### SUMMARY

Evidently, therefore, the Pearl La Sage treatment consists essentially of a weak solution of ordinary soda and borax, with a little phenolphthalein as a coloring agent. And this is the mixture which is sold at an exorbitant price, under the claim that: "It heals, soothes, cleanses, softens and beautifies the skin, removing all impurities, pimples, blotches, blackheads, eruptions, sallowness or lack of color, muddy complexion, liver spots and other skin imperfections."

When the public can be defrauded as easily as this, is it any wonder that actresses and others forsake the ill-paid drudgery of hard work for the "easy money" in fraudulent mail-order schemes?

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## THE HYPOPHOSPHITE FALLACY

### An Example of the Perpetuation of a False Theory by Advertising

A false therapeutic notion born of speculation soon dies a natural death if exposed unsupported to the cold world of facts, but when nursed by commercial interests it may be kept alive for generations. Interesting examples of this, to name but two or three, are the misconceptions perpetuated during the past half century concerning "lithia," the "natural" salicylates and the hypophosphites.

Take, for instance, the lithia delusion. The supposed solvent powers of lithium compounds for uric acid were soon disproved to the satisfaction of scientists, but proprietors of lithia waters and nostrums for gout and rheumatism still harp on the old string and utilize long-exploded theories. Take, again, the alleged superiority of "natural" to "synthetic" salicylates. In spite of experimental proof to the contrary, proprietary interests have been able for twenty years to persuade a large part of the medical profession that the effects of pure salicylic acid made artificially differ from the effects of the same substance obtained from natural sources.

The altogether undeserved continued popularity of hypophosphites affords a striking example of the influence of advertising in perpetuating therapeutic error, for hypophosphites are given on a theory long since disproved. It may be interesting to trace the origin and history of the theory on which the practice of prescribing the hypophosphites is founded. The early part of the last century was prolific in chemical discoveries, and, as a corollary, in chemical theories of disease. Many of the theories arose from the hasty application of the chemical properties of new elements and compounds to the explanation of the processes in the living body, without due consideration of the conditions prevailing in the animal organism.

### THE ELEMENT PHOSPHORUS

The element phosphorus is eager for oxygen and readily oxidizable. When taken into the system it acts as a violent poison, and, in view of this, it was at first supposed—although the supposition was based on no scientific data—that it would prove to be a powerful therapeutic agent when given in minute doses. In its elementary form, phosphorus is difficult to handle, and therefore not convenient for use. Hence it was natural that a compound should be sought which could be used as a substitute for the element.

Broadly speaking, phosphorus forms three classes of salts varying in the degree of oxidation: the phosphates, containing the most oxygen, the phosphites, containing less, and the hypophosphites, least of the three. The phosphates, being saturated with oxygen, undergo little change in the body, and because of this were thought to be of little value in therapeutics. The phosphites contain less oxygen, are unstable and are not used in medicine. The hypophosphites, containing still less oxygen, stand nearest to elementary phosphorus and are easily decomposed and readily oxidized to phosphates. Hence the theory that the hypophosphites would furnish an admirable source from which to obtain the action of the element phosphorus.

### CHURCHILL'S THEORY

The hypophosphites were introduced into medicine about 1855, as a substitute for elementary phosphorus by a Dr. Churchill of Paris, and later of London, who advocated their use as a specific remedy for consumption. Churchill conceived the theory that phthisis is caused by a lack of oxygen in the tissues; he therefore sought an agent capable of increasing oxidation. He was led to the use of hypophosphites for this purpose on the supposition that phosphorus exists in the organism as a biologic element in a lower degree of oxidation than the phosphate. He supposed that this form of phosphorus acts by its chemical affinity as an initiatory agent in attracting and utilizing the inspired oxygen. He believed that when this form of phosphorus, which he called the "phosphide element," is deficient in quantity (because it had been oxidized into phosphate, or because the supply from natural sources was deficient), the degree of oxidation of the tissues is less than normal. Therefore he advocated the use of hypophosphites to supply the lacking oxidizing constituent. He believed this "phosphide element" not only to be essential for the oxidation of the tissues, but also to be the source of energy of the nervous system.

### THE FACTS

The theory was a pretty one; the facts, however, did not support it. Subsequent investigations indicate that instead of consumption being due to a lack of oxygen, there is in that disease really an increased oxidation; in other words, the respiratory exchanges in this disease are exaggerated. The existence in the system of a form of phosphorus less highly oxidized than the phosphates is unproved. No evidence has been produced to show that phosphorus acts as an energizer of oxidation. There is no proof that the hypophosphites enter into general metabolism or affect disease processes in any way. Not only is there no scientific evidence for the utility of the hypophosphites, but science has long since demonstrated their worthlessness.

In 1895 Boddaert[1] published researches showing that hypophosphites are rapidly eliminated through the kidneys unchanged. Similar results have been reached by Paquelin and Joly, who attributed to the hypophosphites only the action of diuretics. In 1901 Massol and Gamel[2] found by animal experimentation that the hypophosphites did not act as diuretics, but that the hypophosphorous acid was completely eliminated in the form of sodium hypophosphite. The urea was not increased and the relation of urea to total nitrogen remained the same. Their results indicated no increase of oxidizing actions within the system. Finally, Massol and Gamel examined the urine of patients taking hypophosphites and found the same conditions: the results were the same as in the experiments on animals.

### PROPRIETARY THERAPEUTICS

In spite of these facts the hypophosphites continue to be employed by many practitioners. Why? Because the theory, being plausible at the time when such chemical theories were popular, gained a certain recognition and was accepted without scientific investigation. Thus the hypophosphites came into use. It was not long before they were taken up by certain manufacturers, and the theory on which their use was based became a commercial asset. As a result the theory, which uncommercialized would have died of inanition, was kept alive by continued advertisement.

The manufacturer of proprietaries having settled on a plausible theory on which to sell his products has no further need for science. Thus, while these theories are no longer to be found in accredited text-books, they are still preached by the proprietary interests. An elaborate pamphlet on "Iodine and Phosphorus," containing statements which are known to be false, is one firm's text-book supplied to physicians to-day, and contains long quotations from Dr. Churchill's writings of sixty years ago. This book contains no intimation that these theories have been overthrown. It is poor economy to waste money in changing literature when the old theories and the old plausible reasoning will sell goods just as well. Consequently the old errors are drummed into those physicians who are willing to read their physiology from the neat monographs of proprietary literature and to sit at the feet of glib salesmen who expound to them the proprietary theory of therapeutics.

## THE DUKET CURE "BLOWS UP"

### Mr. Lorimer's Money Allows a Scientific Demonstration of the Obvious

About a year ago, The Journal gave its readers the results of an investigation of a widely heralded "cure" for consumption put out by one Peter P. Duket, M.D. Duket originally exploited his cure in Findlay, Ohio, but failing to make a commercial success of it there, he attempted to obtain a license to practice in and to transfer his wretched business to Colorado. A wide-awake board of medical examiners frustrated this attempt. Duket finally came to Chicago, where he was able to interest those who controlled Bennett Medical College in his "cure"; these, in turn, enlisted financial assistance from ex-Senator Lorimer to "investigate" the "cure." Incidentally, Duket obtained a license to practice in Illinois. Then followed the second exploitation of this fraud on the consumptive.

As a result of its investigations, The Journal showed, as will be remembered,[1] that Duket was a man of no scientific standing and of unsavory professional reputation; it showed that in eighteen cases investigated, the past record of Duket's "cure" gave a mortality of about 80 per cent.; it showed that the publicity and the professional recognition then being given Duket's "cure" was utterly unwarranted.

The only answer forthcoming to these criticisms was that The Journal's articles were an "attack" on Duket personally. Meanwhile, Mr. Lorimer's money was being freely spent to give added publicity to this worthless "cure." A mailing-list was compiled—said to contain some 140,000 names—and bulletins were sent out at stated intervals advertising the "cure" far and wide. This went on for some months, and then a news item appeared in the Chicago papers announcing, unofficially, that the "investigation" of the Duket cure had demonstrated its worthlessness. These items appeared Nov. 4, 1913. So far as The Journal has been able to learn, however, the 140,000 persons who received the bulletins advertising the "cure" have never been sent the final report, showing its worthlessness.

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[1] Boddaert: Arch. de pharmacodynamie, 1895, ii.

[2] Massol and Gamel: Jour. de pharm. et de chim., 1901, xiv, 337.

[1] See The Journal A. M. A., May 10, May 24 and July 5, 1913; also the pamphlet "Consumption Cure Fakes," price, 10 cents.

After waiting some weeks, The Journal wrote asking when the public would be notified of the results of the investigation. No definite reply was given on this point, but some time later a copy of the "report" on the "cure" was received for publication. This "report" was returned with the suggestion that it be given to the country through the same avenues of publicity that had been used in cruelly raising the hopes of the consumptives. It was again asked whether the facts were going to be given the public. No reply was forthcoming.

In view of this, it becomes the unpleasant duty of The Journal to give what publicity it can to the essential parts of the report by Duket's backers on the Duket "cure." The findings are really summed up in the following paragraph, taken from the report as submitted to The Journal. The capitalization is ours:

> "It may at once be stated that the investigators and authors of this report have finally come to the conclusion that there are ABSOLUTELY NO MERITS IN THE DUKET TREATMENT of tuberculosis; that the method is VASTLY INFERIOR TO ANY OF THE APPROVED SYSTEMS of treating pulmonary tuberculosis; and that their observations would indicate that the DUKET TREATMENT MAY SOMETIMES LEAD TO ALBUMINURIA."

Summed up, then, every contention made by The Journal regarding the worthlessness of Duket's "cure" has been proved! At an expenditure of thousands of dollars a self-evident fact has been verified—a fact that The Journal gave to the medical profession and the public a year earlier!

In discussing the possible composition of Duket's secret "cure," The Journal admitted its ignorance on this point, but stated that there was evidence which indicated that Duket was using a widely advertised consumption "cure" known as the Hyer-Baldwin preparation, consisting of carbonate of guaiacol, salicylic acid and glycerin. Here is what the report has to say regarding the composition of the nostrum:

> "The chemicals used in the so-called Duket cure for tuberculosis are *carbonate of guaiacol, salicylic acid*, bicarbonate of soda, carbonate of potash and a small amount of nitric acid, all of which are dissolved in *glycerin*. This solution is diluted with distilled water and sometimes a trace of tincture of chlorid of iron is added." [Italics ours.—Ed.]

What does it all mean? That a self-evident fraud has been seriously studied and gravely reported to be a fraud; that, after exhaustive research costing thousands of dollars, scientific men solemnly affirm that the moon is not, and probably never was, made of green cheese!

But the expenditure of money and brains on a quest of this sort, while a woful economic waste, could be overlooked if that were the only thing involved. In reality, this is the smallest part of it. The most expensive element in this widely advertised piece of miscalled research was paid for, not in money, but in the blasted hopes and shattered desires of a myriad of unhappy consumptives.

## UNITED DOCTORS LEAVE SOUTH BEND; DR. S. M. BARTLETT, SUCCESSOR—ANOTHER NEWS ITEM

The latest town to be abandoned by the United Doctors is South Bend, Ind., where Lee B. Kinsey, brother of Ben W. Kinsey, the original promoter, lived and had his headquarters. From there he directed the offices at South Bend, Elkhart, Kokomo, Muncie and Evansville, Ind., and several in northern and western Ohio and a number of offices in Michigan. Most of these offices, like the one at Muskegon, Mich., where the owners were sued for rent, died a natural death. The office at South Bend, which had been making a desperate struggle for some time, in a last spurt advertised in the South Bend and nearby Indiana and Michigan papers about the middle of February that the "President of the Medical Staff of the United Doctors" would be in South Bend for a week. Everybody was advised to come in and take advantage of the opportunity to see this "past master in the art of healing." His name was not mentioned. Evidently the invitation to come in was not accepted to any great extent, for shortly the announcement was made that Dr. S. M. Bartlett, who had supplied the office for a year or more, had succeeded the United Doctors and was occupying the same offices. Bartlett now advertises under the name "Dr. S. M. Bartlett, Specialist," and in his advertisements calls himself "Master Specialist in chronic diseases." He is an example of the way in which the United Doctors make "specialists" in a short time out of indifferent or poor material, and foist them on the public as men with special skill and training. Bartlett graduated in 1904 at the Physio-Medical College in Indiana, which went out of existence in 1909. Until a little over two years ago he practiced at Oakford, Howard County, Ind., a town of 150 inhabitants, which has not supported a physician since he left. After leaving Oakford he became one of the hired men of the United Doctors at Kokomo, Ind., where he was immediately made one of the United Doctors' "great specialists," and was then transferred to the South Bend office.

# Correspondence

### A Christian Scientist as Adjuster of Accident Insurance Disability*

*To the Editor:*—I wish through your columns to inform the profession, especially those in Illinois, that the Preferred Accident Insurance Company of New York employs as an agency superintendent and adjuster in Chicago a man who is understood to be a devotee of Christian Science. What this means to the patrons of this company in this district can be readily appreciated. As I have written to the officers of the company, it would seem as reasonable for a fire-insurance company to employ a blind man to adjust a fire loss as for an accident company to adjust accident insurance disability of its patrons by the aid of one who religiously believes there is no actual pain, disease or disability.

I have asked of the home office for the name of the medical director of this company in order that I might call his attention to this fact, but have not been able to secure the name of that official. If you can give me his name please do so.

George N. Kreider, M.D., Springfield, Ill.

### Correction of Error

*To the Editor:*—In the article on the "Progress of Orthopedic Surgery," by Dr. J. D. Griffith (The Journal, March 7, 1914, p. 748), the following error should be corrected:

Dr. Griffith, under the head of scoliosis, states that "after having pursued this treatment [with the Abbott plaster-of-Paris jacket] in a great many cases of lateral curvature, Abbott's conclusions are as follows:

"1. Rotary lateral curvature of the fixed type, developed in childhood and persisting in adolescence, cannot be cured perfectly.

"2. The condition of the patient can be much improved.

"3. The anteroposterior postural deformities can be corrected.

"4. The lumbar lordosis can be corrected.

"5. The lateral deviation of the body can be corrected.

"6. The lateral deviation of the spine is corrected in early cases.

"7. The rotation of the vertebrae may be improved but not corrected.

"8. The use of the plaster jacket, applied by the Abbott method in flexion with corrective felt pads, is very satisfactory, in that we are enabled to obtain the result in a shorter time than by any other method of treatment heretofore practiced."

These are my own conclusions and have been copied from my article printed in the *New York Medical Journal* of

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* See Current Comment, this issue.

Nov. 22, 1913, from a paper entitled "Recent Progress in Orthopedic Surgery," which I send you herewith and which reads as follows:

"In the *New York Medical Journal* of April 27, 1912, the same journal in which Abbott's last article appeared, there was also another by the writer, entitled "Rotary Lateral Curvature Based on the Report of Results Obtained." My conclusions at that time have since been substantiated. They are in brief: 1," etc., as above.

Dr. Griffith has also copied from this article elsewhere in his paper, to which one would have no objection provided that quotation marks were used and the references given in each instance. Charles Ogilvy, M.D., New York.

[The preceding letter was referred to Dr. Griffith, who replied:]

*To the Editor:*—I am very sorry indeed that I understood from the paper in the *New York Medical Journal* that the conclusions were Dr. Abbott's and hence did not give Dr. Ogilvy credit. I did not and do not claim a particle of originality in the review on "The Progress of Orthopedic Surgery," and used the article of Dr. Ogilvy as I did those of Goldthwaite and others. I am sorry I did not mention Dr. Ogilvy as I should have. J. D. Griffith, M.D.

### Holmes, Not Semmelweis

*To the Editor:*—In preparing, a few years ago, material for a publication on "Epoch-Making Contributions to Medicine and Surgery," I had occasion to look up the subject discussed in the Current Comment on "Holmes, not Semmelweis" (The Journal, April 11, 1914, p. 1177). A comparison of the dates of the writings of Holmes and Semmelweis arranged in parallel columns brings out graphically the truth of your statement. These lists of publications will be found on pages 434 and 435 of the volume on "Epoch-Making Contributions" referred to.

I should like also to mention an article by Dr. Richard Cole Newton on "A Brief Study of the Contribution of Ignaz Philipp Semmelweis to Modern Medicine" (*Med. Rec.*, New York, Sept. 10, 1910). Dr. Newton shows the gradual development in the mind of Semmelweis regarding the theory of the origin of puerperal fever. On page 10 Newton states that Semmelweis' intensive study of puerperal fever *began with* his appointment as assistant to the chair of obstetrics and as chief of the First Obstetrical Clinic in the Vienna General Hospital in 1846. This was *three years after* the publication of Holmes' paper on "The Contagiousness of Puerperal Fever" in the *New England Quarterly Journal of Medicine and Surgery*, Boston. Semmelweis did not publish his observations until several years later. C. N. B. Camac, M.D., New York.

## *Queries and Minor Notes*

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### VITAMINS

*To the Editor:*—Please answer the following questions:
1. What are vitamins?
2. When and by whom were they discovered?
3. What is their scientific status and their relation to beriberi?
4. What literature is there on the subject?

G. H. J. Pearson, London, Ont.

Answer.—1. "Vitamin" is the name given to a substance which is believed to be necessary to prevent the nervous lesions characteristic of beriberi. It is regarded as an antineuritic agent naturally present in rice, the removal of which by polishing causes the symptoms of the disease to appear. The name appears to be derived from vita, life and amin, indicating its chemical character. The substance was at first thought to be a pyrimidin base with the following formula: $C_{17}H_{20}O_7N_2$. It was at first believed to have the constitution of a ureid, but in his latest work Funk states that the nitrogen is not present in the amino form. Vitamin was first found in rice and was connected with beriberi. Other substances of similar character were subsequently discovered and the name has become descriptive of a class.

2. Vitamin was discovered in 1912 by Casimir Funk.

3. Up to the present the only vitamin that has been investigated chemically appears to be that of beriberi. Other vitamins are held by Funk to belong chemically to the same group. Vitamin exists in rice along with allantoin and cholin, but it is to vitamin that the physiologic action of the rice-polishings seems to be due. It has been shown that an exclusive diet of rice deprived of vitamin will cause in fowls a neuritis closely resembling beriberi, and that this artificial disease can be cured by the administration of vitamin.

4. Following are the contributions of Funk to the literature on vitamins:

Funk, Casimir: *Pharm. Jour.*, 1912, lxxxix, 351; *Brit. Med. Jour.*, 1912, ii, 787; *ibid.*, 1913, i, 814; *Biochem. Jour.*, vii, 211; *Jour. Physiol.*, 1913, xlvi, 173; *Lancet*, London, 1914, i, 98.

Funk, Casimir: Die Vitamine, ihre Bedeutung für Physiologie und Pathologie mit besonderer Berücksichtigung der Avitaminosen (Beriberi, Skorbut, Pellagra, Rachitis) Anhang: Die Wachstumsubstanz und das Krebsproblem, Wiesbaden, J. F. Bergmann, 1914.

### RADIUM EMANATIONS

*To the Editor:*—I believe that it is time for the Council on Pharmacy and Chemistry to take up the status of radium emanations and to inform the medical profession, and through it the general public, whether or not radium emanations have a curative value, as claimed by some concerns who offer them for sale. I have looked up the subject and I found that according to Prof. Heinrich Willy Schmidt of Giessen, as quoted by Prof. J. Groebel of Nauheim, every spring water contains radium emanations in varying amounts, but that these emanations, being in gaseous form, disappear very soon after the water leaves the ground and are entirely absent after a short time, even if the water is kept in hermetically sealed containers. If this is the case, then the sale of radium emanations is a humbug and a swindle and it is the duty of the Council on Pharmacy and Chemistry to enlighten the profession to this effect. At any rate it would be worth while to look into this matter and to make public the result of your investigations.

X. Y., Philadelphia.

Answer.—The Council has already taken up radium emanations. A discussion of radium and radium preparations appears in New and Nonofficial Remedies, 1914, pp. 221-225. In this discussion it is pointed out that radium emanations lose their strength rapidly and that in 3.85 days any quantity of the emanations will fall to half its initial activity owing to disintegration of the atoms. From this it is evident that waters whose radio-activity is due, not to radium itself but to radium emanations, will quickly lose their activity. As most radioactive waters do owe their activity to radium emanations, they must be used at the springs. Radium-containing waters were discussed in The Journal, Nov. 1, 1913, p. 1649, Sept. 20, 1913, p. 969, and March 21, 1914, p. 951.

### YAWS IN THE UNITED STATES

*To the Editor:*—Please give me information as to the occurrence of yaws in the United States. Has it occurred in this country? If so, will you kindly give recent literature? I am familiar with the literature of the disease generally, but have been unable to find it in any text-books or systems of medicine published in this country. Edward J. Wood, Wilmington, N. C.

Answer.—Cases of this disease have been reported from the Southern states, but never from the Northern states or from Canada. This is the opinion of Castellani and Chambers, as reported in *Tropical Medicine* for 1910. A similar statement is made in Shoemaker's "Diseases of the Skin," fourth edition, page 647.

### ACTION OF WATER ON LEAD PIPES

*To the Editor:*—In this town there is a municipal water plant. Recently the authorities have made the requirement that all connections to water mains and to the property shall be of lead. Many pipes are from one to three hundred or more feet long. Is there danger of lead poisoning from this? Our water is very hard and heavily charged with mineral and earthy matter. Is this a usual requirement for persons using city water?

F. S. Smith, M.D., Nevada, Ia.

Answer.—The ability of a natural water to take up lead depends largely on the oxygen and carbon dioxid content of the water. In general it may be said that soft waters and especially the acid waters from peaty swamps and marshes possess the most active lead-dissolving properties. Some hard waters, however, particularly those in which the hardness is of the kind known as "permanent," that is, due chiefly to sulphates and chlorids, may be quite plumbosolvent. Thresh (The *Examination* of Waters and Water-Supplies, Ed. 2, Philadelphia, P. Blakiston's Son & Co., 1913) recommends testing the action of water on lead "by placing in it a piece of freshly scraped lead, 2 inches by ½ inch. The piece of lead is put at the bottom of a deep 100-c.c. cylinder containing 100 c.c. of the water and allowed to stand in the dark for twenty-four hours. The water and lead are then examined. Any turbidity or deposit indicates an erosive action, in which case the water must be filtered before testing to ascertain if any lead has entered into solution. Or half may be filtered and tested to ascertain the solvent action and the other half be acidified with acetic acid and the erosive effect determined."

One thing is certain, that wherever it is proposed to use lead water-service pipes the action of the water on lead should be carefully determined.

## THERMOPRECIPITIN REACTION IN DIAGNOSIS OF PULMONARY TUBERCULOSIS

*To the Editor:*—In The Journal, April 11, 1914, p. 1202, appears an abstract mentioning the thermoprecipitin reaction in the diagnosis of pulmonary tuberculosis. Please describe this reaction.
Subscriber.

Answer.—This reaction was first described by Fagiuoli (*München. med. Wchnschr.*, 1913, p. 1480). It is based on Ascoli's reaction in the diagnosis of anthrax in animals. Fagiuoli's instructions for carrying out the test were: To a certain quantity of sputum (from 5 to 10 c.c.) double the quantity of chloroform is added. The mixture is well stirred up, and put in the incubator at 37 C. (98.6 F.) for from three to four hours. The chloroform is then decanted, and replaced by the same amount of normal saline solution. After two or three minutes of vigorous shaking, a homogeneous emulsion of a white, milky appearance is obtained. This is filtered through a Schleicher und Schull paper No. 490. If the filtrate is cloudy or even slightly opalescent, the filtration is repeated through asbestos. The experiment is carried out in small test-tubes (2.5 by 0.1 cm.). The tube is filled to about half with precipitating serum and then carefully, with a capillary pipet, a few drops of the sputum extract are run on the surface. The contact must not be quick or vigorous. The tubes are put for from twenty to thirty minutes into the incubator at 37 C., and the result is then read off. The result is regarded as positive if during the thirty minutes after the test is put up a white precipitation ring appears at the junction zone.

## LITERATURE ON RELATION OF DISEASE AND CRIME

*To the Editor:*—Please give me late references to books or current literature on the relation of disease to crime, and on crime as a disease. Arthur F. Fischer, M.D., Hancock, Mich.

Answer.—The following is a list of recent articles on these subjects:

Anderson, C. H.: Are Criminals Insane Individuals? Bowers, P. E.: Constitutional Immorality; Sleyster, R.: Some [illegible] Gathered in a Study of 269 Murderers, and Hill, G. M.: Ways and Means of Preventing Physical, Mental and Moral Degeneracy, *Illinois Med. Jour.*, April, 1914.
Kohler, F.: Psychopathologie der Tuberkulose und ihre kriminelle Bedeutung, *Ztschr. f. Tuberk.*, 1909-1910, xv, 31.
Bowers, P. E.: Causes of Crime, *New York Med. Jour.*, July 19, 1913.
Sneve, H.: Influence of Parental Diseases, Habits and Heredity on Juvenile Crime, *Bull. Am. Acad. Med.*, October, 1913.
The Criminal Class and the So-Called Criminal Type, editorial, The Journal, Jan. 21, 1911, p. 201.
Noble, C. P.: The Law of Degeneracy in Its Relation to Medicine, *New York Med. Jour.*, Dec. 24, 1910.
Fry, D. R.: Pathologic Condition of Nose, Throat and Ears as Etiologic Factors in Degeneracy, *Ohio State Med. Jour.*, September, 1910.
Hughes, M. R.: Recurrent Insanity and the Stigmata of Degeneracy, *Med. Fortnightly*, November, 1910.
Lombroso, Cesare: Crime: Its Causes and Remedies, Boston, Little, Brown & Co., $4.50.

## STATES RECIPROCATING WITH KENTUCKY

*To the Editor:*—Please give full particulars regarding reciprocity in Kentucky. J. L. S.

Answer.—Reciprocal relations on the basis of a written examination only have been arranged by Kentucky with Colorado, Delaware, District of Columbia, Illinois, Louisiana, Minnesota, New Hampshire, New Jersey, North Dakota, Texas and Virginia, and such relations on the basis either of an examination or of a diploma from a reputable medical college (without examination), if the diploma and license were granted prior to Sept. 1, 1907, have been arranged by Kentucky with Arkansas, Georgia, Indiana, Iowa, Kansas, Maine, Maryland, Michigan, Missouri, Nebraska, Nevada, Ohio, Oklahoma, South Carolina, Tennessee, Utah, Vermont, West Virginia and Wisconsin. For at least one year the applicant must have been a member of his county and state societies and the national association of the system of medicine with which he affiliates, and must be recommended as worthy of reciprocity at a stated meeting of the medical society in which his membership originated.

## JOURNALS ON ROENTGENOLOGY

*To the Editor:*—Please supply me with a list of the best English, French and German magazines on Roentgen-ray therapy and roentgenography. James A. Jackson, Jr., M.D., Madison, Wis.

*To the Editor:*—Will you kindly give me the name of some of the journals devoted exclusively to Roentgen-ray work?
James N. McCoy, M.D., Vincennes, Ind.

Answer.—The following is a list of journals on roentgenology in various languages, together with their publishers and price of publications.

*American Journal of Roentgenology*, 32 West Adams Street, Detroit, $5.
*Archives of Roentgen Ray*, Rebman Company, New York City, $4.50.
*Fortschritte auf dem Gebiete der Roentgenstrahlen*, Hamburg, L. Gräfe & Gillem, 30 marks.
*Strahlentherapie*, Berlin, Urban & Schwarzenberg. Price varies.
*Archives d'électricité médicale, expérimentales et cliniques*, Bordeaux, $5.
*Zentralblatt fü[illegible]dium und verwandte Gebiete*, Wiesbaden.
*Zeitschrift fü[illegible] Radiumforschung*, Leipsic, Krause, 20 marks.

## ARTICLES ON URTICARIA

*To the Editor:*—Please refer me to recent contributions on chronic urticaria. It is common here in the tropics, but I have a case in which it recurs only on the parts exposed to the sun, following a moderate sunburn. It might be called dermatitis solaris, but distinct urticarial lesions in other parts of the body preceded this manifestation. One physician suggested a careful use of the Roentgen ray, but I am doubtful about trying it.
H. P. Nottage, M.D., Honolulu, H. I.

Answer.—The following is a list of articles on this subject:

Ochs, B. F.: Urticaria Caused by the Sun's Rays, *Med. Rec.*, July 30, 1910.
Vorner: Urtica Solitaria, *Dermatol. Ztschr.*, January, 1913.
Ravitch, M. L.: Thyroid as Factor in Chronic Urticaria, *Jour. Cutan. Dis.*, November, 1907.
Jacob, F. H.: Care of Urticaria Pigmentosa Treated with Roentgen Ray, *Brit. Med. Jour.*, June 1, 1907.

## STATISTICS ON MEDICAL EDUCATION

*To the Editor:*—Please answer the following questions:
1. How many medical colleges are there in the United States?
2. How many physicians are there in the United States?
3. How many students graduated in medicine in the United States each year from 1901 till the present year?
Leo Ricen, M.D., Portland, Ore.

Answer.—1. 106.
2. 142,000.
3. 1901, 5,444; 1902, 5,009; 1903, 5,698; 1904, 5,747; 1905, 5,600; 1906, 5,364; 1907, 4,980; 1908, 4,741; 1909, 4,515; 1910, 4,440; 1911, 4,273; 1912, 4,483; 1913, 3,981.

# Medical Economics

This Department Embodies the Subjects of Post-Graduate Work, Contract Practice, Legislation, Medical Defense, and Other Medicolegal and Economic Questions of Interest to Physicians

## PRIVILEGED COMMUNICATIONS

Inquiries are frequently received regarding the law on privileged communications and the right of physicians and patients to regard professional communications as privileged in the legal sense. This subject is interesting and important, from both the legal and medical points of view. In order to place the facts before our readers, our Medicolegal Bureau has prepared the following as a summary of the existing condition of legislation on this subject, as well as an argument on the abstract question from a legal point of view.

The term "privileged communication," as used in the law of evidence, has reference to the confidential relationship of physician and patient, lawyer and client, priest and penitent. The idea has prevailed among physicians that each of these three relations has a peculiar privilege. In the eyes of the law this is not the case. An examination of the authorities shows that this right of privilege did not exist at common law for the physician, but only for the lawyer, and possibly for the priest.[1] Furthermore, in this country the physician was not vested with the right of privilege until 1828, when New York enacted the first statute. Subsequently, many states adopted measures, so that to-day more than half of them have legislated this doctrine into law.[2]

At present, twenty-eight states have statutes providing in some form for privileged communication to physicians. These states are: Arizona, Arkansas, California, Idaho, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Dakota, Utah, Washington, West Virginia, Wyoming, Wisconsin and the District of Columbia. Alaska and Hawaii have similar legislation.

The remaining states, twenty-one in number, have no such law. Massachusetts has recently rejected such a law.[3]

Professional privileges are of statutory origin. The purpose is to protect communications made to physicians in their professional capacity. The limit of this protection, however, varies not a little in the different states. In several states the law applies only in civil actions. It is generally required that the privileged matter shall be "information" and often of a "confidential nature," acquired "while attending in a professional capacity," or such as is necessary to "treat the patient" or the like. In Pennsylvania the law is limited to that which tends to blacken the character of the patient. In West Virginia the law permits a physician to testify if he is sued for causing a death by a wrongful act, neglect or default, but only as to the medicine or treatment given the deceased. The proposed criminal code of Louisiana for 1910 provided that no physician could disclose a communication of a patient, either preceding or after the termination of his employment, unless the patient waived his right of privilege. The law also excepted physicians appointed by the court to make physical examinations.

These laws have been given varied constructions by the several jurisdictions. In New York there have been many objections raised. That the criticisms were not altogether without foundation is evidenced by the fact that the statute of that state was amended in 1891, 1892, 1899 and 1904. These amendments and those of other states have all tended to liberalize the laws and at the same time to pay due regard to the right of privacy which the public is supposed to desire in relations with physicians.

Because of the varying provisions of the law in different states, it is important that physicians do not take too much for granted, but that they secure legal advice, especially as to the law in their respective states. The bill recently defeated in Massachusetts is based on the New York law. It is of interest as the latest effort to formulate a law on this question.

Following is a draft of the Massachusetts bill, which is entitled "Physicians or Professional Registered Nurses not to Disclose Professional Information": A person duly authorized to practice physic or surgery, or a professional or registered nurse, shall not be allowed to disclose any information which he acquired in attending a patient in a professional capacity, and which was necessary to enable him to act in that capacity; unless, where the patient is a child under the age of 16, the information so acquired indicated that the patient has been the victim or subject of a crime, in which case the physician or nurses may be required to testify fully in relation thereto on any examination, trial or other proceeding in which the commission of such crime is a subject of injury."

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[1] Wigmore: Evidence, iv, Par. 2380 et seq. See also Lord Chief Justice Mansfield in Duchess of Kingston's Trial, Howard State Trials, 1776, xx, 573.

[2] Wigmore: Evidence, iv, Par. 2380 et seq. See particularly footnote thereunder citing statutes; also session law to date elsewhere. Also Commissioners' Revision of the Statutes of New York, 1836, iii, 737.

[3] Medical Legislation: Disclosure of Professional Information, editorial, Boston Med. and Surg. Jour., Feb. 26, 1914, p. 326. Boston, Charles A.: In Witthaus and Becker, Medical Jurisprudence, p. 90.

# *Medical Education and State Boards of Registration*

## COMING EXAMINATIONS

Arkansas: Little Rock, May 12. Sec., Dr. W. S. Stewart, Suite 404 Citizens Bk Bldg., Pine Bluff. Homeopathic: Little Rock, May 12. Sec., Dr. I. J. Brooks, 219 East 10th St., Little Rock. Eclectic: Little Rock, May 12. Sec., Dr. C. E. Laws, Ft. Smith.

Georgia: Atlanta and Augusta, June 3. Sec., Dr. C. T. Nolan, Marietta

Illinois: Coliseum Annex, Chicago, May 12-14. Sec., Mr. Amos Sawyer, Springfield.

Kentucky: Louisville, June 3-5. Sec., Dr. A. T. McCormack, Bowling Green.

Louisiana: New Orleans, June 4-6. Sec., Dr. E. L. Leckert, Macheca Bldg., New Orleans. Homeopathic Board: New Orleans, May 4. Sec., Dr. Edward Harper, 702 Macheca Bldg., New Orleans.

Massachusetts: Boston, May 12-14. Sec., Dr. Walter P. Bowers, Room 159, State House, Boston.

Nebraska: Lincoln, May 27. Sec., Dr. H. B. Cummins, Seward.

Nevada: Carson City, May 4. Sec., Dr. Simeon L. Lee, Carson.

New York: May 19-22 Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

Ohio: Columbus, June 2-5 Sec., Dr. George H. Matson, State House, Columbus.

Pennsylvania: Philadelphia, June 1-3. Sec., Dr. Nathan C. Schaeffer, Harrisburg.

Tennessee: Memphis, Nashville and Knoxville, first week in May. Sec., Dr. A. B. DeLoach, Memphis.

### Pennsylvania Board Announcements

At a recent meeting of the Bureau of Medical Education and Licensure of Pennsylvania the secretary of the bureau was instructed to call the attention of medical schools to the requirement in the practice act that applicants for licensure must have had a general education of not less than a standard four-year high-school course or its equivalent and, "in addition, not less than one year of college credits in chemistry, biology and physics, all of which have been received before admission to medical study," and that every applicant for admission to the first year of the medical course in the colleges of Pennsylvania must have from the Bureau of Professional Education a certificete specifying that he or she has met these requirements of preliminary education. The bureau also adopted plans for licensing drugless healers and chiropodists, and withdrew recognition from the Bennett Medical College of Chicago.

### Non-Recognition of Low-Grade Colleges

A report from Dr. C. T. Nolan, secretary of the State Board of Medical Examiners of Georgia, states that at a recent meeting of that board a resolution was adopted that hereafter graduates of medical colleges rated in Class C by the Council on Medical Education of the American Medical Association would not be admitted to examinations conducted by that board.

There are now thirty state licensing boards which as a rule do not give full recognition to colleges rated in Class C. These states are:

Alabama
Arkansas (Reg.)
Colorado
Connecticut (Reg.)
Delaware
Georgia
Indiana
Iowa
Kentucky
Louisiana (Reg.)
Maryland (Reg.)
Michigan
Minnesota
Mississippi
New Hampshire
New Jersey
New Mexico
New York
North Dakota
Ohio
Oklahoma
Pennsylvania
Porto Rico
Rhode Island
South Carolina
Texas
Vermont
Virginia
West Virginia
Wisconsin

### Alabama January Report

Dr. W. H. Sanders, secretary of the Alabama State Board of Medical Examiners, reports the written examination held at Montgomery, Jan. 13-16, 1914. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 67, of whom 40 passed and 24 failed, two withdrew and one was expelled. The following colleges were represented:

PASSED

| College | Year Grad | Per Cent |
|---|---|---|
| Birmingham Medical College | (1912) | 75, 82; |
| | (1913) | 78 80 81, 81, 82. |
| University of Alabama | (1909) | 75; |
| | (1912) | 75; |
| | (1913) | 76, 77, 77 78, 78, 80, 81, 81, 83, 83, 84, 87. |

| | | |
|---|---|---|
| Howard University ................ | (1905) 78; (1913) | 76 |
| Atlanta College of Physicians and Surgeons ..... | (1913) | 76 |
| Atlanta School of Medicine ..................... | (1908) | 82 |
| Chicago College of Med. and Surg. | (1912) 76; (1913) | 81 |
| College of Physicians and Surgeons, Chicago.... | (1895) | 83 |
| State University of Iowa, Coll. of Homeo. Med. | (1881) | 78 |
| Tulane University | (1911) 76; (1912) 86; (1913) 75, 80, 86. | |
| Johns Hopkins University ..................... | (1913) | 86 |
| University of Michigan, Dept. of M. & S...... | (1913) | 78 |
| Jefferson Medical College...................... | (1911) | 88 |
| Meharry Medical College...................... | (1913) | 80 |
| Memphis Hospital Medical College.............. | (1912) | 75 |
| University of Nashville ...................... | (1908) | 87 |

FAILED

| | | |
|---|---|---|
| Birmingham Medical College | (1912) 73; (1913) 59, 60, 63, 69, 69, 69, 72*. | |
| University of Alabama ............ | (1909) 73; (1912) | 53 |
| Atlanta College of Physicians and Surgeons | (1912) 59; (1913) 57, 72. | |
| Atlanta School of Medicine.......... | (1910) 55; (1912) | † |
| University of Georgia ...................... | (1912) | † |
| Bennett Medical College ..................... | (1913) | 70 |
| Meharry Medical College ..................... | (1913) | 72 |
| Memphis Hospital Medical College | (1913) 43, 45, 48, 57, 57, 59. | |
| University of Tennessee ..................... | (1913) | 66, 71 |

* No grade given.
† Withdrew.

The following questions were asked:

### ANATOMY

*(For Recent Graduates)*

1. Describe the upper third of the femur. 2. Describe the thyroid gland, including its blood-supply. 3. Give origin and termination of the internal jugular vein. 4. Describe Poupart's and Gimbernat's ligaments. 5. Locate and describe the gall-bladder. 6. Name the structures divided in an amputation 4 inches below the knee. 7. Name and describe the membranes which surround the spinal cord. 8. Give the origin, course and distribution of the sciatic nerve. 9. Trace the fetal circulation. 10. Describe the inguinal canal.

### ANATOMY

*(For Graduates of Five Years or More)*

1. Name the bones forming the skull. 2. Indicate on the anterior chest wall the locations beneath which the valves of the heart are found. 3. Name the regions of the abdomen. What is found in the right hypochondriac region? 4. Name the muscles forming the gluteal group, giving their relations to each other. 5. Name the contents of Scarpa's triangle, giving their relations to each other. 6. Name the tissues that are divided in an operation for inguinal hernia. 7. Trace the arterial blood from the heart to the fingers. 8. Where is the tendo Achillis and what forms it? 9. Name the coverings of the brain. 10. Where does the abdominal aorta divide? Name its subdivisions.

### CHEMISTRY

*(For Recent Graduates)*

1. Write out the formula of a compound containing three elements and explain in detail. 2. What are the differences between an element and a compound? Give three examples of each, with formulas or symbols. 3. Describe how pure oxygen, to be used for inhalation, may be prepared. What impurities may oxygen contain? 4. Name the halogens. Give symbols and name a solvent for each. 5. Describe a test for free hydrochloric acid in gastric contents. 6. Describe the chemical changes occurring during the digestion of proteins. 7. How may the presence of lead in water be detected? 8. Define the term "catalysis" and the term "hemotaxis." 9. Name four important compounds obtained directly, or indirectly by synthesis, from the products of the destructive distillation of coal. 10. Describe acetic acid; give formula, physical and chemical properties. What class of salt does it yield and how may they be detected?

### CHEMISTRY

*(For Graduates of Five Years or More)*

1. Give physical and chemical properties of oxygen. 2. Give physical and chemical properties and physiologic action of carbon dioxid. 3. What is meant by "reaction to litmus"? Name some practical applications of the reaction to the uses of the clinician. 4. Name the alkali metals. 5. Name at least one solvent for each of the following: (*a*) citrate of potassium; (*b*) calcium phosphate; (*c*) phosphorus; (*d*) camphor. 6. Name a chemical antidote for each of the following: (*a*) corrosive sublimate; (*b*) arsenic; (*c*) oxalic acid. 7. What poisonous gases are contained in illuminating-gas? 8. Describe the fermentation test for sugar. 9. Describe a test for bile in urine. 10. How may morphin and quinin be distinguished?

### PHYSIOLOGY

*(For Recent Graduates)*

1. Discuss muscular fatigue—causes, effects and resulting phenomena. 2. Discuss the peritoneum, with special reference to its function. 3. Discuss the formation of lymph and the factors controlling its flow. 4. Discuss the regeneration of the blood after a severe hemorrhage. 5. Discuss the physical and chemical changes in the blood and air through respiration. 6. Discuss vomiting and its causes. 7. Discuss the mechanism by which the blood-pressure is controlled. What is the approximate adult blood-pressure? 8. How is the automatic action of the heart-muscle supposed to be maintained? 9. Of what does an animal cell consist? Discuss its functions. 10. What is the function of the kidney?

### PHYSIOLOGY

*(For Graduates of Five Years or More)*

1. Discuss the physiologic action of the bile. 2. Discuss the physiologic processes by which liquids are eliminated from the body. 3. What is the normal relation of pulse-rate to respiration? 4. What is the proportion of blood to body-weight? How much blood can be suddenly lost without fatal results? 5. What effect has high temperature on the force and frequency of the heart-beats? 6. What effect has loss of elasticity in the walls of the blood-vessels on the circulation of the blood? 7. Discuss the conveyance of oxygen to body tissues. 8. What is the function of the eustachian tubes, and what disturbances follow their occlusion? 9. Discuss knee-jerk. 10. State principal difference between voluntary and involuntary muscles.

### ETIOLOGY, PATHOLOGY, SYMPTOMATOLOGY AND DIAGNOSIS OF DISEASES

1. Give the etiology of endocarditis. 2. Give the etiology of ileocolitis. 3. Give the pathology of lobar pneumonia. 4. Give the pathology of acute gastritis. 5. Give the pathology of chronic interstitial nephritis. 6. Give the symptomatology of appendicitis. 7. [illegible] of cirrhosis of the liver. 8. Give the symp[illegible] of diphtheria. 9. Give the diagnosis of [illegible] differential diagnosis between tuberculosis and typhoid fever.

### PHYSICAL DIAGNOSIS

1. What significant signs may be observed in an inspection of the neck? 2. Give the physical signs of pneumothorax on one side and the reasons therefor. 3. Give the physical signs of lobar pneumonia in the second stage and the reasons therefor. 4. Give the physical signs of recent occlusion of a primary bronchus and the reasons for the same. 5. Give the physical signs of mitral insufficiency of regurgitation and the reasons for the same. 6. Give the physical signs of acute dilatation of the right side of the heart and the reasons for the same. 7. Give the physical signs and the laboratory findings in cancer of the stomach near the pylorus, with considerable obstruction. 8. Give the method of examination and the physical signs of movable kidney. 9. Give the physical signs of a considerably distended gall-bladder. 10. Give the physical signs of exophthalmic goiter.

### SURGERY

1. Describe, in a general way, the preparation of a patient for surgical operation. 2. Name the different kinds of suture material and discuss their relative merits. 3. Describe an indolent ulcer of the leg and give the treatment. 4. Differentiate between tetanus and strychnin poisoning and discuss the treatment of tetanus. 5. Give the classification of tumors. 6. Give diagnosis and treatment of fracture of clavicle. 7. Give diagnosis and treatment of subcoracoid dislocation of head of humerus. 8. Give diagnosis and treatment of floating kidney. 9. Give usual causes of peritonitis. 10. Give diagnosis and treatment of ulcer of the duodenum.

### OBSTETRICS AND OBSTETRIC OPERATIONS

1. What should be learned on the first visit to, and in the first examination of, a case of labor? 2. What can be determined by external palpation of the pregnant woman at the eighth month, and how should it be performed? 3. What is placenta praevia, and how should it be treated? 4. What is version, and how many kinds are there? 5. When a child is apparently still-born what are the methods of resuscitation? 6. Should the head in a case of labor fail to engage in the pelvic brim, how would you manage? 7. How soon after the completion of the second stage of labor should the umbilical cord be ligated, how would you dress it, and what are the dangers of improper dressing? 8. Discuss in general the principal drugs used to hasten labor. 9. What conditions demand version? What, forceps delivery? What, cesarean section? 10. Describe the operation of cesarean section.

### GYNECOLOGY

1. Give the findings on examination in chronic salpingitis, and state from what condition it must be differentiated. 2. What pathologic lesions occur in the cervix uteri? 3. Make diagnosis of beginning cancer of the cervix uteri. 4. Give causes and treatment of subinvolution of the uterus. 5. Give treatment of backward displacement of the uterus. 6. Name the neoplasms of the ovary. 7. What reflex symptoms may follow pelvic lesions? Give explanation. 8. Give definition and etiology of metrorrhagia. 9. Give etiology and symptoms of pelvic hematocele. 10. Give treatment of urethral caruncle.

### HYGIENE AND MEDICAL JURISPRUDENCE

1. Give the hygienic management of acute lobar pneumonia. 2. Give the hygienic management of whooping-cough. 3. What are disinfectants? Deodorants? Germicides? 4. How would you proceed to prevent or overcome malaria in a given district? 5. Describe briefly the proper mode of disinfecting and cleaning a room which has been occupied by a patient suffering from a dangerous communicable disease. 6. What symptoms and conditions would indicate that a sufferer from diphtheria was still infective? How may it be shown that the infective period of such patient has passed? 7. Into what general classes are foods divided? Give examples of each. 8. Define malpractice. 9. Name conditions that would legally justify induction of premature labor. 10. What is coma? Give three causes of coma.

### DISEASES OF THE EYE, EAR, NOSE AND THROAT

1. Name the two principal muscles of the eyelids, and explain their action. 2. What kind of tissue lines the posterior surface of the eyelids, and what is it called? Name three of its important diseases and write prescriptions therefor. 3. Give the stages, dangers and general principles of management of ulcer of the cornea. 4. Give the symptoms, dangers and management of acute iritis. 5. Give the symptoms of obstruction of the nasal duct of considerable standing, and the meth[illegible] Mention the symptoms that would indicate th[illegible] the middle ear, and give two methods of [illegible]ld you examine the hearing of a person, and how would you differentiate between a case of deafness that could very probably be relieved and one that could not be? 8. Give the diagnosis, dangers and treatment of acute tonsillitis. 9. Mention the symptoms that would create a suspicion of a foreign body in the larynx, and give the method of definitely determining the matter. Give also the methods of removal of foreign bodies from the larynx. 10. Differentiate between an acute laryngitis of severe type and a laryngeal diphtheria. Give briefly the management of each.

# Book Notices

The Intervertebral Foramen: An Atlas and Histologic Description of an Intervertebral Foramen and Its Adjacent Parts. By Harold Swanberg, with an Introductory Note by Prof Harris E. Santee. Cloth. Price $3. Pp. 101, with 18 illustrations. Chicago: Chicago Scientific Publishing Co., 1914.

During the last decade several so-called "schools of medicine" have arisen, based on the assumption that disease, instead of being a specific result of definite causes, is simply a manifestation in different parts of the body of interference with the nerve-supply due to pressure on the spinal nerves at their point of exit from the spinal canal. This is one of the dogmas of the osteopath, although his conception of the human body as a machine admits of various other "lesions" in the form of dislocations of muscles, tendons and even blood-vessels. Several of the latter-day cults, however, are based entirely on the theory that pressure on the spinal nerves is responsible for all imaginable ills. Such a cause being admitted, the treatment is easy—simply remove the pressure. Unfortunately for these faddists, however, the demonstration of their major premise involves a large amount of careful scientific research which they have never undertaken, since they are of the type of mind which is unable to distinguish between a hypothesis and a demonstrated fact. What the advocates of these various cults have shirked doing, however, has been taken up by Mr. Swanberg, who has made a careful study of the minute anatomy of the intervertebral foramina and the exact relations of the spinal nerves to them. Mr. Swanberg's book is illustrated with sixteen plates made from actual dissections. The findings, while interesting to the anatomist, are principally important, as stated by Dr. Santee in the introduction, because this field, though limited, "is sufficiently broad to form the anatomic basis for several schools of practice." The author's findings are that the spinal nerves are entirely surrounded at their exit from the canal by fatty-fibrous tissue and that this tissue serves to protect the nerve from pressure. Summing up his observations, he says, "I have seen many ankylosed specimens where the intervertebral foramina have been greatly reduced in size, but in every instance there seemed enough room for the nerve to pass free from any bony pressure. Possibly in some such cases [changes in the intervertebral disks or cartilages] the nerve may be subject to actual bony pressure, but from my observances this occurrence is extremely rare. . . . Nature seems to use every possible precaution to protect them [the spinal nerves] from bony pressure. This is the reason, no doubt, that the intervertebral foramina, in both animal and man, are so much larger than the nerves themselves."

The various cults based on the theory of spinal manipulation as a cure for disease have never had any positive evidence on which to base their belief. Mr. Swanberg's book deprives them of even negative evidence.

Annual Report of the Bureau of Health for the Philippine Islands. Paper. 1913.

In his annual report for 1913, Dr. Victor G. Heiser, director of health in the Philippines, interestingly sets forth the results of the year's work. Heiser calls attention to the numerous and varied activities of the department, which concern many more subjects than health department activities in the states. The field includes not only those responsibilities usually imposed on health organizations such as the collection and compilation of vital statistics and the protection of the public from dangerous communicable diseases, but also the distribution of public charities, the care of the insane, orphans and the aged, the administration of general and special hospitals, the hygienic and medical care of civilian employees, the administration of the Food and Drugs Act, investigation of the water-supply, plumbing and building ordinances, making physical examinations for entrance into public service, and many other duties. The report takes up briefly practically all of these subjects, giving their present status both in textual and in tabular form. As a whole, the report shows that health conditions in the Philippines are most satisfactory. No great epidemics occurred during the year. There were a few small outbreaks of bubonic plague which were quickly controlled, and owing to the very thorough supervision of the health department, cholera was entirely absent. Small-pox occurred only in a few persons arriving in the islands from the outside.

Among the topics of great interest discussed in the report are beriberi, leprosy and the care of the insane. By animal experimentation and by practical application in the bodies of considerable numbers of human beings, both in the Philippine Islands and in the Straits Settlements, Heiser says that it has been absolutely demonstrated that beriberi depends on the use of polished rice as the chief or sole diet, and that the use of unpolished rice will always clear up these cases unless in a too advanced stage. Of interest in this connection is the hypothesis, not yet proved, that taon, a disease in infants which is responsible for a large portion of the 50 per cent. of deaths under 1 year, is due to beriberi in the mothers. Further studies are being carried on to determine this point.

As to leprosy, the report says that all forms of treatment that have been suggested have been tried. The mixture of chaulmoogra oil with resorcin offers at least some slight promise, and two patients are reported as having recovered under this treatment and remained well for more than two years. Others have been benefited, but in many cases there has been no improvement.

Heiser believes that the conditions in the Philippines with reference to the care of the insane are not at all what they should be, and improvements will have to be made in this respect. The proportion of the insane, however, among the Filipinos is not so great as among the population of the United States.

While excellent work is being done by the health and sanitary authorities in the Philippines in all departments, the director says, there is general need for larger appropriations in order to maintain the standard which has been attained. The report is an excellent one and significant of the results which can be achieved anywhere as well as in Panama or the Philippine Islands, by strict and sane sanitary supervision.

The Administrative Control of Small-Pox. How to Prevent or Stop an Outbreak. By W. McC. Wanklyn, B.A., M.R.C.S., L.R.C.P. Cloth. Price, $1.10 net. Pp. 86. New York: Longmans, Green & Co., 1913.

This volume is a companion to the book "How to Diagnose Small-Pox," by the same author, and is intended as a contribution toward the prevention of that disease. It is prepared primarily for postgraduate students working for the diploma on public health given by the English universities. After discussing the natural history of small-pox and the mode of its development, the details of administration with which the modern health officer should be familiar are then taken up. The author puts the case in graphic form. "A certificate of a case of small-pox lies in front of you on your table. The question is in point of fact and detail, what are you going to do? If you are a responsible medical officer of health, that is a question that you must answer. If you are going to succeed, you have to be ready with the answer, to act instantly and to overlook nothing." Dr. Wanklyn outlines three main indications: to ascertain the exact extent of the existing condition and how it originated, to eradicate what already exists and to prevent further cases developing. These indications are discussed at length, but always definitely and clearly. Dr. Wanklyn's book is an excellent illustration of the methods of modern public health work. The competent health officer of to-day no longer wastes his time in generalities. So far as our present knowledge of preventive diseases will permit him when the emergency arises, he acts promptly, vigorously and definitely. Dr. Wanklyn's book is a material contribution to this particular problem.

**An Overdose.**—A drug does not effect its purpose if the dose is too large, and it is the same with censure and adverse criticism when it exceeds the measure of justice.—Schopenhauer.

# *Miscellany*

### Report of New York Milk Committee for 1913

In its report the New York Milk Committee presents figures showing what has been accomplished in New York City in the way of baby saving. Both its work and that of the various public and private agencies working in connection with it during the seven years of its existence are included. It is asserted that 950,000 babies were born during that period, 109,000 of whom died. If the rate of mortality for the five-year period previous to the formation of the committee had prevailed, the deaths would have been 150,000. There was thus an actual saving of 41,000 infants. If the death-rate among infants for 1913 had prevailed throughout the seven-year period, the actual deaths would have amounted to 96,000. It is therefore asserted that the improved infant death-rate of New York can no longer be attributed to favorable weather conditions or to chance, but must be credited to the activities of all the agencies working along the line of infant welfare based on a program of clean and safe milk, systematic education of mothers in matters of feeding, hygiene and sanitation, etc. It is along these two main lines—the improvement of the milk-supply and the education of parents—that the committee has been working. The work of the National Commission on Milk Standards, created by the New York Milk Committee, has been endorsed by national scientific and business associations having to do with milk and the milk industry, and its reports have been published by the United States Public Health Service and its regulations endorsed by health authorities in many communities. The report sets forth many details of the work of the committee by chart and text. One of the directions in which the work of an educational character has expanded is in the support and cooperation given to baby contests, a number of which were held in New York during the year. This, it is believed, is a valuable means of educating communities in the better care and rearing of children and will do much to aid in the reduction of infant mortality. Instruction in prenatal care and the development of milk stations and health centers are also directions in which much of the valuable work of the committee has been done. Statistics of infant mortality in over 120 cities of the United States have been collected and are set forth in a table covering the years from 1906 through 1913. The New York committee sets the standard for infant-welfare work, for it is shown that the infant-mortality rate is lower in that city than in any other of the ten largest cities of the country, and for 1913 has been improved over the low figures for 1912.

### Butter Quality

Work carried out recently in Boston by Rosenau, Frost and Bryant (*Jour. Med. Research*, 1914, xxx, 69), possesses great practical importance as it deals with a commodity of daily use. While much attention has been paid recently to milk as a carrier of bacteria which might produce infection, comparatively few examinations have been made of butter. Twenty-five samples were studied, each being scored and then examined chemically and bacteriologically. The samples were carefully selected to represent the average kind of butter found in the Boston market, and care was taken to select those representing distinct supplies. They originated either from New England or Wisconsin and Minnesota creameries. Scoring is done on a system of points: flavor 45, grain or body 25, color 15, salt 10 and packing style 5. Almost without exception the butters received a high score, the principal deductions being made under the heads of flavor and salt. In most cases the authorities were unable to determine the age of the butter, but whenever it was known it was indicated. The price varied from 33 to 70 cents per pound. No definite relation between score and price was evident. In general, none of the samples was found to contain less fat or more moisture than allowed by law, and no harmful adulteration was discovered. A few samples contained coloring-matter of vegetable origin, but none contained azo dyes. Three of the samples examined were unsalted and none of the remainder contained an excessive amount of salt. Four of the twenty-five samples were made from pasteurized cream.

The general sanitary condition of the butter was difficult to determine because of the lack of a practical dirt test. No such test has as yet been devised, and its need was most apparent in this series of examinations.

Of greatest importance were the findings of the bacteriologic tests. The average number of bacteria for the twenty-five samples was 5,700,000, the lowest 8,600 and the highest 41,000,000. No particular relation apparently exists between the number of bacteria and any other constituent determined, such as salt, reaction, moisture, etc., but the number of bacteria diminishes markedly with age. It is suggested that the bacteria, therefore, may be used as an indication to the age of the butter. *Bacillus coli* was found in only six of the twenty-five samples, and from a few special experiments it would seem that this bacillus dies out very soon in butter. Streptococci were found in fourteen of twenty-five samples. The anaerobic *Bacillus welchii*, although found frequently in milk, was not found in any of the butter.

Tubercle bacilli were present in two of twenty-one samples tested for this micro-organism; the four samples made from pasteurized cream were not tested for it. The authorities state that there can be no objection to pasteurizing cream intended for butter; such butter, however, should not be labeled "pasteurized butter," but "butter made from pasteurized cream." It so happened that the samples which contained tubercle bacilli were purchased from a single purveyor in Boston, and were a high-priced butter with a high score, but contained, nevertheless, in addition to tubercle bacilli, a large per cent. of bacteria per gram and streptococci. It would seem, then, that price is not a guarantee of safety. The authorities conclude that all cream intended for butter should be pasteurized.

Such work as this, it may again be stated, is of the greatest practical importance. It is a check on the manufacturers of such common products and is a stimulus to continued endeavor in the production of high-class and safe food materials.

### *Patent Medicine*

This is the time of the year that the patent medicine quack gets in his best work. I know that you do not use it, but there are people whom you can influence who do. Tell them that the doctor, who knows what is in these concoctions, would not give them to his family, that the chemist wonders how any one can trifle with his own health, and even the manufacturers of it whom I have known take the attitude, when reproached for selling it, of, "Well, there are folks who will take some kind of stuff from a bottle. I might as well be the one to profit by their ignorance as any one else."

Less than a week ago a friend of mine admired the home of a man whose money was made through one of the "female" (how I dislike that word!) remedies advertised at every country store. He laughed and replied, "Yes, it was built of woman's health." "Woman's health, your grandmother!" she ejaculated, "it was woman's credulity." "Oh, well, if you like to put it that way," he said, "they think they got the health, I know I got the house."—*Progressive Farmer*, Raleigh, N. C.

### Old Doc Gallinger

Senator Gallinger is rounding out his last term in the Senate. His distinguished career is drawing to a close. His latest triumph is his nation-wide campaign against vivisection. He proposes an investigation by the Public Health Service into the rumors that the doctors in New York hospitals use children instead of animals for experiments with serums. If Gallinger were a typical American, we should not be swift in condemning Russia for her excitement about "ritual murder." Senator Gallinger has already decided in his own mind "that a prima-facie case has been made out against some practitioners." Senator Gallinger proclaims the glad tidings that he is himself a physician. In truth, after an academic education that would not now admit him to any medical college of the first rank, he attended an "Eclectic

Medical Institute" in Cincinnati in 1858, and achieved the degree of M.D. ten years later from the New York Homeopathic Medical College. After he had practiced medicine in Concord, N.H., for ten years, politics claimed him as its own. He opposes anything endorsed by the American Medical Association, like the Owen bill for a Department of Health, and the Children's Bureau with its inquiry into infant mortality. Nobody takes Senator Gallinger seriously as a senator. Why not let him strut about as an authority on medical subjects?—*Harper's Weekly.*

### Tropical Areas Free from Malaria

Notwithstanding the almost universal presence of mosquitoes in tropical countries, certain areas have been found to be free from malaria, even when the anophelines are found. Major Brooke of the United States Army, in an article in the *Military Surgeon* of March, 1914, reports that Cebu in the Philippines is free from malaria although the anopheline mosquito has been found in Cebu and it is surrounded by the zones in which malaria is epidemic. Major Brooke says that it has been reported by Ludlow that there are no malarial mosquitoes in Cebu; but Brooke personally has found specimens of the genus *Myzomyia.* This variety of mosquito has been found to harbor the malarial parasite in certain stages of its development, but it has been found not to transmit malaria because it is believed that the development of the parasite is never complete. Brooke refers to the suggestion of Manson that there are some places free from malaria and yet surrounded by epidemic zones, as in the case of Cebu, because in that particular area food conditions for the mosquito may exist which are inimical to the growth of parasites in their bodies.

## Medicolegal

### Aim and Duty of Surgeons—Bad Results Alone Do Not Prove Malpractice

*(Hills vs. Shaw (Ore.), 137 Pac. R. 229)*

The Supreme Court of Oregon reverses a judgment for $6,000 damages for alleged malpractice in the treatment of the plaintiff's broken leg, and remands the case with instructions to enter a judgment of nonsuit. The court says that the testimony showed that the defendant was called to treat the patient June 4, properly diagnosed a fracture of the right femur, and, to all appearances, treated it by the usual methods known and approved by reputable surgeons, until July 23, when, on account of his intended removal to another locality, he left the case in the charge of another surgeon. It was not until after that, and after the plaintiff had begun to sit up and move around on crutches and had gone into town in an automobile that a misplacement or nonunion was suspected.

It being alleged and admitted that the defendant was a practicing physician and surgeon, practicing that profession at a certain place, which, in connection with the laws regulating the practice of medicine and surgery, necessarily implied that *prima facie*, at least, he had the requisite skill and ability. The substance of the doctrine taught by various instructive cases is that if a regularly licensed physician employs the skill of which he is possessed with reasonable diligence in treating a surgical case, he is not liable for an error of judgment, and that the mere fact that an untoward result ensues is not in any sense evidence of negligence. There are so many elements combating the surgeon in his efforts to restore a patient to bodily soundness that he can do no more than exercise his best skill and judgment to accomplish the desired result. The ideal which the surgeon strives to achieve in cases of this kind is so to establish coaptation of the broken parts of a bone, with the surfaces of the fresh fracture touching each other, that the bone is restored to its original situation, then by bandages or other appliances to keep it in position until healing ensues. This is the utmost that the highest degree of surgical skill can accomplish. Nature must do the rest.

Reduced to its lowest terms, this case was one in which the result of treatment was a failure. There was nothing to show that the surgeon did not do his best with what skill he possessed. The error of the plaintiff's contention consisted in relying on the abortive result of the treatment as an evidence of negligence on the part of the defendant, without showing further that some careless act or omission by the defendent produced that undesirable consequence. To hold the defendant liable under such circumstances would be to require him to insure absolute success in every operation which he undertook. Such a rule would be too drastic to be applied to the medical and surgical profession, and is not borne out by the authorities. However deplorable the condition of the plaintiff, there was a hiatus in the testimony on his behalf, between the time the defendant ceased to treat him and the subsequent discovery of the non-union of the bone, which broke the connection of the defendant with the untoward result so far as negligence was concerned.

### Coloring of Articles of Food with Intent to Deceive

*(People vs. William Henning Co. (Ill.), 103 N. E. R. 530)*

The Supreme Court of Illinois says that the public health requires that food should be absolutely and unquestionably pure. In order to accomplish this the legislature may legislate against fraud or deception by means of false coloring. It may forbid the use of coloring-matter or dye, or of such a mixture of two or more ingredients of the same general nature as will deceive or mislead the public. A false color is sometimes more liable to deceive than a false brand. Every consumer has the right to distinguish for himself what an article of food is and to have the means of judging its quality and value for himself, uninfluenced by deception. In this case the defendant sold five barrels of vinegar, each of which had stenciled on its head in large, plain, black letters: " A compound of White Distilled and Sugar Vinegar." This was a violation of Section 11 of the Illinois pure food statute, which provides that, "All vinegar made wholly or in part from distilled liquor shall be branded 'Distilled Vinegar,' and shall not be colored in imitation of cider vinegar," as the compound had the color of cider vinegar, and the evident reason for making it was that it should have. The object of the pure food act is to protect not only the dealer and jobber, but also the retail purchaser or consumer, otherwise the law would be of little practical value. It may be that the regulation provided for in Section 11 will embarrass the dealers in this class of goods. The prudence of such a regulation may be debatable, but it is not indefensible. It is well known that the adulteration of food-products is carried on to such an enormous extent as to menace the health of the people. To redress such evils is a plain duty but a difficult task.

### Asylum Records Protected by Statute Governing Privileged Communications

*(Massachusetts Mutual Life Insurance Co. et al. vs. Board of Trustees (Mich.), 144 N. W. R. 538)*

The Supreme Court of Michigan says that a writ of mandamus was sought to compel the board of trustees of the Michigan Asylum for the Insane, at Kalamazoo, to permit the relators to inspect the records of the asylum containing information concerning the mental and physical condition of one Willey, who was a patient in the asylum for nearly two years and a half prior to his death. It was contended (1) that the records of the asylum were open to the inspection of the relators under the terms of Act No. 76 of 1903, entitled "An act to facilitate the inspection of the records and files in the offices of the county, city," etc., and (2) that the relators, as parties to a pending suit begun for the cancellation of certain policies of life insurance which had been issued to Willey, had the right at common law to inspect the records of the asylum for the purpose of obtaining information necessary to enable them to prepare for the trial of such suit. Many authorities were cited in favor of the proposition that the general and well-settled rule is that all public records are open to the inspection of all persons who show an interest therein, and irrespective of whether the records are such as could be introduced in evidence, and also of whether the matter recorded concerns a single person, a number, or the public at large. But none of the authorities was directly in point, though, if no question of privilege had been involved in this case, it might be said they were persuasive. The Michigan statute, as amended in 1909, provides: "No person duly authorized to practice physic or surgery shall be allowed to disclose any information which he may have acquired in attending any patient, in his professional character, and which information was necessary to enable him to prescribe for such patient as a physician, or to do any act for him as a surgeon." This language has frequently been construed by this court. The construction has been invariably to preserve the privilege granted by the language of the statute. It will be noticed that the statute goes farther than to forbid giving testimony. Its language is: "No person duly authorized to practice physic or surgery shall be allowed to disclose any information," etc. The court is constrained to hold that the action of the trustees in refusing inspection of the asylum records was justified.

# *Society Proceedings*

## COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, ATLANTIC CITY, JUNE 22-26.

Am. Assn. of Genito-Urinary Surgs., Stockbridge, Mass., May 15-16.
American Dermatological Association, Chicago, May 14-16.
American Gynecological Society, Boston, May 19-21.
American Laryngological Association, Atlantic City, May 25-27.
American Medico-Psychological Association, Baltimore, May 26-29.
American Neurological Association, Albany, May 7-9.
American Ophthalmological Society, Hot Springs, Va., May 12-13.
American Otological Association, Atlantic City, May 27-28.
American Pediatric Society, New London, Conn., May 26.
American Society of Tropical Medicine, Boston, May 29-30.
American Therapeutic Society, Albany, May 29-30.
Arkansas Medical Society, Eldorado, May 19-22.
Association of American Physicians, Atlantic City, May 12-13.
Connecticut State Medical Society, New Haven, May 20.
Florida Medical Association, Orlando, May 13-15.
Illinois State Medical Society, Decatur, May 19-21.
Iowa State Medical Society, Sioux City, May 13-15.
Kansas Medical Society, Wichita, May 6-7.
Maine Medical Association, Portland, June 10-11.
Maryland Medical and Chir. Faculty, Baltimore, April 28-30.
Massachusetts Medical Society, Boston, June 9-10.
Missouri State Medical Association, Joplin, May 12-14.
Nat. Assn. for Study and Prev. of Tuberculosis, Washington, May 7-9
National Association for the Study of Epilepsy, Baltimore, May 25.
Nebraska State Medical Association, Lincoln, May 12-14.
New Hampshire Medical Society, Concord, May 13.
New York State Medical Society, New York, April 28-30.
North Dakota State Medical Association, Grand Forks, May 13-14.
Ohio State Medical Association, Columbus, May 5-7.
Oklahoma State Medical Association, Guthrie, May 12-14.
Rhode Island Medical Society, Providence, June 4.
South Dakota State Medical Association, Watertown, May 26-28.
Texas State Medical Association, Houston, May 12-14.
West Virginia State Medical Association, Bluefield, May 13-15.

## PHILADELPHIA COUNTY MEDICAL SOCIETY

*Meeting held March 11, 1914*

The President, DR. WILLIAM DUFFIELD ROBINSON, in the Chair

### Inflammation of the Gall-Bladder: Its Causes, Symptoms and Results

This paper, by DR. JAMES TYSON, appears in this issue of THE JOURNAL, page 1295.

### Treatment of Gall-Bladder Infections

DR. JOHN H. GIBBON: I have substituted the word "infections" for "gall-stones," as we now know that the primary cause of these stones is a microbic infection reaching the gall-bladder either through the blood or directly through the bile-passages from the intestine. If one feels warranted in making a diagnosis of gall-stones or gall-bladder infection, one should also feel warranted in advising operation unless there be some definite contra-indication. To await serious symptoms is comparable to awaiting glandular metastasis and malignant cachexia before making a diagnosis of cancer. The earliest and most persistent symptom of gall-bladder infection is what the patient calls "indigestion" or "distention" in the upper abdomen, coming on especially at night and without any definite relation to the taking of food. Jaundice is not essential to a diagnosis; in about 80 per cent. of gall-stone cases with operation, this symptom has been absent. Gall-bladder symptoms may result also from other causes than the presence of stones which demand operation.

In my series of twenty-six cases there were two of acute cholecystitis without stone and three of chronic cholecystitis without stone. In my opinion both patients would have later developed stones had they not been operated on. My series of cases includes three cases of acute gangrenous cholecystitis, in all of which there was recovery; two cases of acute cholecystitis without stone, one developing two weeks after typhoid; eight cases of stones in the common duct; one of stone in the ampulla of Vater requiring duodenotomy; one of calcification of the gall-bladder; one of abscess formation in the liver and spleen; one of subdiaphragmatic abscess two weeks after operation in a case of acute cholangeitis due to stones in the common duct; one of cirrhosis of the liver; one of stones ulcerating into the colon; twenty cases of stones in the gall-bladder alone or associated with some of the enumerated complications, and two cases of cancer of the gall-bladder. The greatest number of stones, 771, was found in one of the malignant cases. In the cases in which the duration of symptoms is given, the average is over six years. The youngest patient was 19 and the oldest 69 years of age. There were five deaths, all of which occurred in very ill patients. Regarding the probability of gall-stones reforming after operation, I believe that if all are removed and the gall-passages properly drained for about two weeks, recurrence is extremely rare.

### The Roentgen Rays in the Diagnosis of Gall-Stones and Cholecystitis

This paper, by DR. GEORGE E. PFAHLER, appears in this issue of THE JOURNAL, page 1304.

#### DISCUSSION ON GALL-BLADDER INFECTIONS

DR. H. A. HARE: I believe that the statements of Anderson are warranted by our present knowledge. While surgical procedure is frequently the best, and often the only means offering a chance of relief, its advocacy, based on certainty of cure and assurance of non-recurrence, is not borne out by results. The main object of treatment is the relief of the infection and inflammatory changes, and not merely the removal of gall-stones. So long as there is no recurrence of the inflammatory attacks, there will be no attack of gall-stones. Recovery not infrequently occurs under non-operative treatment, especially in early and mild cases, and particularly after first attacks, before serious local damage has been produced by the infection.

Medical treatment should be given a fair trial in all cases in which the patient's physical condition does not warrant operation, and with the numerous patients who refuse operation. In many such cases Anderson has seen complete and permanent recovery from all symptoms of the disease. Medical treatment is indicated in many cases as a preliminary to operation, and in order to allow the acute infection to subside as far as possible. Medical treatment is indicated in all cases after operation to allow of complete subsidence of the infection, and if possible, to prevent reinfection and recurrence. Anderson believes that it would make for clearness of thinking and give definiteness to therapeutic aims if we adopted the suggestion of Naunyn and gave up the term "cholelithiasis" and classified these various infections of the biliary passages as cholangeitis with such qualifying terms as simple, catarrhal, suppurative, gangrenous, calculous, etc., according to the condition present in the particular case.

Anderson never advises strongly against operation in any case, unless it is definitely contra-indicated; but, after explaining the possibility of failure, and that operation may eventually be required, he does not hesitate in early and mild cases, especially after first attacks, to give medical treatment a thorough trial, and has found that in many instances, excellent and permanent results have been obtained. To this I would add that occasionally we see patients die after operation who would have lived many weeks if they had been let alone surgically. When there are evidences of septic trouble or gangrene, operation is, of course, imperative.

DR. WILLIAM E. HUGHES: It is important to recognize the existence of gall-stones because, while they may lie quiescent through the normal life of the patient, they are there and are a possible source of trouble. Nine times out of ten in cases in which my attention has been called to "gall-stones" collected from the feces they have proved to be not gall-stones, but foreign matter. The paroxysmal nature of the symptoms, and the relief of pain temporarily on eating, are characteristics very suggestive in diagnosis. Probably the one symptom which is never lacking is that of indigestion.

DR. THOMAS R. NEILSON: We cannot emphasize too strongly the danger of delaying operation with the diagnosis of cholecystitis fairly made. Although the attacks may subside, there is always the danger of recurrence and of the development of malignant disease. The symptom of indigestion as indicative of a chronic lesion of the gall-bladder is important, and sometimes the only one on which a diagnosis can be made. At operation pericholecystitis is one of the commonest associated conditions, and for this nothing but operation would be of avail.

DR. W. WAYNE BABCOCK: I would emphasize the value of local anesthesia in certain types of gall-bladder disease. We should realize that gall-stones represent a terminal condition. The patient may have had few symptoms for five or twenty years, but finally develops an acute condition. In such a case it would have been much better to try to prevent such an outcome by early operation. It is interesting to note what other symptoms may follow gall-bladder disease. Most surgeons have seen cases in which the most surprising results have followed operation on the gall-bladder. Arthritis deformans sometimes disappears after a gall-bladder operation. In a patient with tic douloureux who developed gall-bladder disease the pain of the former condition disappeared after removal of the pus and gall-stones. We know that neuritis may result from gall-bladder infection. There are also conditions in the intestinal tract and other remote conditions due to intoxication or passage of the bacteria to these parts of the body. It seems to me that within the next two or three years we are going to revise our conceptions of intestinal indigestion.

DR. ROBERT N. WILLSON: I have seen more than once cases of cholangeitis and also gall-stone cases of necessity treated medically when the surgeon could not be reached. In such cases the symptoms have disappeared with the emptying of the intestinal tract. In gall-stone cases I have seen more than one case carried over year after year simply because the patient absolutely refused operation.

# ***Current Medical Literature***

## AMERICAN

Titles marked with an asterisk (*) are abstracted below.

### Annals of Surgery, Philadelphia

*April, LIX, No. 4, pp. 465-642*

1 *Methods Suggested for Bone Transplantations. C. A. McWilliams, New York.
2 *Autogenous Bone Grafting for Fracture of Patella. J. Rogers, New York.
3 *Treatment of Ununited Fractures of Tibia by Transplantation of Bone. Report of Nine Cases. M. S. Henderson, Rochester, Minn.
4 Treatment of Ununited Fractures of Tibia by Intramedullary Bone Transplants. Report of Five Cases. E. F. Robinson, Kansas City, Mo.
5 Transvesical Prostatectomy in Two Stages. P. M. Pilcher, New York.
6 Normal Bladder and Its Sphincters and Changes Following Suprapubic Prostatectomy. A. Hyman, New York.
7 Eversion of Bladder. H. Packard, Boston.
8 Arteriovenous Aneurysm of External Iliac Vessels with Wound of External Iliac Vein. B. M. Bernheim, Baltimore, and P. Wroth, Jr., Hagerstown, Md.
9 Perforating Gastric and Duodenal Ulcers. F. Martin, Baltimore.
10 *Peritoneal and Pleural Absorption, with Reference to Postural Treatment. W. E. Dandy and L. G. Rowntree, Baltimore.
11 Subcutaneous Traumatic Rupture of Normal Spleen. A. F. Barnes, Cambridge, Mass.
12 Hernia of Large Intestine. A. V. Moschcowitz, New York.
13 *Looping Cardinal Lateral Ligaments in Uterine Prolapse. A. J. Nyulasy, Perth, Western Australia.
14 Simple and Complete Forms of Apparatus for Intratracheal Anesthesia. H. H. Janeway, New York.

1. Abstracted in THE JOURNAL, Feb. 28, p. 731.

**2. Autogenous Bone Grafting.**—Rogers suggests that the autogenous bone graft be taken from the crest of the patient's tibia and implanted on the front of the patella to bridge the lines of fracture. He describes the procedure as follows: Make a U-shaped flap, with the apex of the convexity over the ligamentum patella and the extremities over the condyles of the femur, suture the lateral rents in the fibrous capsule. Denude the anterior surface of the patella fragments of periosteum over an area about 1 inch square on each side of the line of fractures. Expose the crest of the tibia and chisel off from its inner surface a quadrilateral plate 1½ inches long, ¾ inch wide by ⅛ inch thick. Leave its periosteum undetached. Place this with its raw surface in apposition with the denuded area in front of the patella. Unite the fragments by a figure-eight suture of chromicized catgut or kangaroo tendon, which grasps the ligamentum patella and quadriceps tendon immediately below and above the broken bone and crosses in front of the transplant. The periosteum, which was previously turned back from the patella, is next drawn up to or over the transplant with a couple of catgut sutures. The skin incisions are closed by a subcuticular catgut stitch, and the limb enclosed in a plaster-of-Paris case splint for four or five weeks.

**3. Transplantation for Ununited Fracture.**—Henderson advises taking the bone to be transplanted from the tibia, either above or below the fracture, preferably from the flat internal surface of the tibia rather than from the crest which is dense, strong and being the apex of a triangle, serves a most important weight-bearing function. A piece of bone removed from here down to the medullary cavity weakens the bone out of all proportion to the size of the piece removed. The bone on the interal surface is not so dense and is also more vascular and a large piece may be removed here without greatly weakening the bone. All the layers, i.e., periosteum, cortex and medullary lining should be included in the transplant. In the tibia by forming a gutter down to the medullary cavity, the transplant can be placed so that periosteum meets periosteum, cortex meets cortex and medullary lining meets medullary lining, thus obtaining an anatomic approximation favorable to rapid healing.

The bone should be of sufficient length to make a substantial bridge, usually 2 or 3 inches long and about ½ inch in breadth and should include all the layers. The transplant is sewed in by stitching the periosteum of the transplant to the periosteum of the shaft. The skin is then closed with silkworm and horsehair and the dressing applied. A plaster-of-Paris cast is applied to include the knee and ankle. This is removed at the end of two weeks. Sutures are removed and a new cast put on which is left for from four to six weeks. Further treatment is guided by the individual case. Union is usually firm enough to permit walking in from three to six months.

**10. Peritoneal and Pleural Absorption.**—By injecting collargol into the peritoneal and pleural cavities of dogs and later making a roentgenograph Dandy and Rowntree have been able to observe the effect of gravity on fluids in these cavities. These examinations demonstrate that gravity exerts a very important influence in determining the localization of fluids. In the pleural cavity gravitation is practically instantaneous, in the peritoneal it is slower, its course being retarded and the direction influenced by the intestines. There is no evidence of an intraperitoneal current to the diaphragm. There is very active absorption of fluids from all parts of the normal peritoneal and pleural cavities. This absorption is essentially hemic and not lymphatic. Peritoneal absorption is practically equal in all postures except pelvis-down, in which it is 15 per cent. less than in the others. Pleural absorption is practically equal in all postures except pelvis-down, in which it is 13 per cent. less.

The explanation of these findings the authors are unable to give. They suggest that the visceral peritoneum undoubtedly plays an important part in absorption—probably a more active part than the visceral pleura. The authors have no evidence to support the view that there is an intraperitoneal current to the diaphragm, nor any evidence in favor of the claims that the central tendon or the diaphragm as a whole performs more than its proportional amount of peritoneal absorption. The authors conclude that though Fowler's position as originally instituted was based on entirely fallacious and disproven grounds, there is adduced evidence of a different character, perhaps sufficient to justify the resort at times to this postural method in the treatment of acute diffuse peritonitis. The above results tend also to support the employment of Coffey's lateral modification of Fowler's position.

13. **Uterine Prolapse.**—The only operative procedure for uterine prolapse which seems to Nyulasy to bear the light of rigid investigation is that which directly deals with certain tissues (in the broad ligaments) passing out from the sides of the uterus. These structures—the cardinal ligaments—are the main element holding the uterus at a more or less definite level in the pelvis. Their supporting power is illustrated in vaginal hysterectomy (in a normally-fixed uterus), when all supporting elements except the broad ligaments have been completely severed. At this stage in the hysterectomy the uterus can only be drawn down by a vulsellum in the cervix exercising some force, the resistance to this force being the pull of the cardinal ligaments on the uterus. When the vulsellum is released the cardinal ligaments, pulling on the uterus, draw it back to its original position.

The cardinal ligaments can readily be demonstrated by turning the bladder down from the uterus. They commonly arise by three more or less definite heads from each side of the uterus, the middle head corresponding to the position of the uterine artery, the interior head being attached to the upper surface of the lateral vaginal fornix and the superior head being attached a little above the median head. The three heads of the cardinal ligament unite together to form a band about half an inch or more in width which passes outward for over an inch between the layers of the broad ligament. The cardinal ligament which, up to this is largely muscular, now tends to change its character, sending off fibrous bands, fan-wise to the wall of the pelvis and other parts, some of these bands being inverted into the posterolateral wall of the bladder and others passing up over the iliacs.

After locating the ureter the cardinal ligament may be dissected from the posterior peritoneal layer of the broad ligament and thus completely isolated. The primary supports of the uterus in Nyulasy's opinion are its ligaments, while the secondary support is the pelvic diaphragm. The cardinal ligaments being exposed as stated are dissected off the posterior layer of the broad ligaments and looped up on the anterior wall of the uterus to which they are sutured with silk. After taking a loop in each round ligament the wound in the peritoneum is closed with a continuous catgut suture. The more striking advantages of the operation are said to be: 1. The practical absence of hemorrhage. 2. The excellent immediate anatomical result and almost certain good permanent effect. 3. The comparative absence of postoperative shock. 4. The absence of raw surfaces.

### Boston Medical and Surgical Journal

*April 2, CLXX, No. 14, pp. 481-560*

15 Architecture of Children's Hospital. C. A. Coolidge, Boston.
16 Development of Hospital with Especial Reference to Medical Service. T. M. Rotch, Boston.
17 History of Children's Hospital with Especial Reference to Orthopedic Department. R. W. Lovett, Boston.
18 Work of Children's Hospital in 1913. J. L. Morse, Boston.
19 Orthopedic Surgery at Boston Children's Hospital. Review of Thirty Years of Continuous Service. E. H. Bradford, Boston.
20 Infantile Scorbutus. J. L. Morse, Boston.
21 Inguinal Hernia in Children. J. S. Stone, Boston.
22 Case of Chondro-Osteosarcoma. Amputation of Hip. R. W. Lovett, Boston.
23 Obstetric Paralysis with Especial Reference to Treatment. J. J. Thomas, Boston.
24 Round Shoulders with Short Clavicles. A. Thorndike, Boston.
25 Removal of Foreign Bodies from Esophagus and Lower Air Passages in Children. D. C. Greene and F. E. Garland, Boston.
26 Influence of Alkalies on Gastric Motility. M. Ladd, Boston.
27 *Study of Etiology in One Hundred and Seventy-Five Epileptic Children. A. W. Fairbanks, Boston.
28 Hemorrhage Following Tonsillectomy. F. E. Garland and D. C. Greene, Boston.
29 Poliomyelitis. Operative Treatment. R. Soutter, Boston.
30 Importance of Early Recognition of Acute Arthritis of Hip-Joint in Infants. R. T. Legg, Boston.
31 Diagnosis of Enlarged Thymus and Symptomatology of Hyper-Thymatism. P. H. Sylvester, Boston.
32 Treatment of Cervical Adenitis in Children. W. E. Ladd, Boston.
33 Case of Lymph Cyst of Mesentery. C. G. Mixter, Boston.
34 Flat Foot in Children. A. Ehrenfried, Boston.
35 Pyelitis in Infancy and Childhood. E. T. Wyman, Boston.
36 Two Cases of Cirrhosis of Liver in Childhood. E. Ely, Boston.
37 Case of Multiple Bone Tuberculosis Atypical in Its Distribution and Roentgen-Ray Appearances. H. J. Fitz Simmons, Boston.
38 *Significance of Von Pirquet Reaction in Surgical Tuberculosis in Children. L. B. Robertson, Boston.

*April 9, CLXX, No. 15, pp. 561-600*

39 *Gonorrheal Metastatic Arthritis. H. W. E. Walther, New Orleans.
40 Seasonal and Meteorologic Influence on Tubercular Patients. N. B. Burns, Reading.
41 Apparatus for Use in Operations on Open Thorax. C. A. Ewald, Seattle, Wash.
42 Insanity in China. A. C. Reed, Changsha, China.
43 Educational Standards for Nurses. State Registration and Training School Inspection. S. E. Parsons, Boston.

27. **Etiology in 175 Epileptic Children.**—The study of 175 cases confirms an opinion Fairbanks has held for many years, as the result of the observation of many hundred epileptic children, that heredity is a minor factor in the etiology of epilepsy, whenever the disease is studied at such an age that the true details of the past and family history of the victim can be obtained. These data are obtainable in the case of children to an infinitely greater extent than when the disease is investigated only in adults. Both the data and physical examination of epileptic children indicate that the affection in the majority of instances is the result of acquired cerebral injury from trauma or disease.

38. **Von Pirquet Reaction in Surgical Tuberculosis in Children.**—In all cases having clinical evidence of surgical tuberculosis, either in bone or soft tissues examined by Robertson, 2.9 per cent. showed negative Von Pirquet reactions. In those cases not showing definite clinical evidence of tuberculosis, although some showed enlarged anterior cervical glands and others gave a family history of tuberculosis, 14 per cent. showed positive cutaneous reactions. In the apparently nontuberculous cases, the reaction was more frequently negative in the younger children, as seen from the following: 0-4 years, 48 cases; positive reactions in 10 per cent.; 4-8 years, 61 cases; positive reactions in 14.5 per cent.; 8-12 years, 40 cases; positive reactions in 17.5 per cent.

From these above figures it is concluded that the Von Pirquet reaction is fairly reliable in children under 12 years of age, but that it has less significance where the patient shows enlargement of the anterior cervical lymph-nodes or gives a family history of tuberculosis.

39. **Gonorrheal Metastatic Arthritis.**—Walther says he passes over the internal treatment for something more promising. The newer surgical procedures which have been employed in combating this disease have undoubtedly done much toward curing the severer forms. Of the numerous operations advocated Walther mentions four, namely, (1) aspiration of the joint alone; (2) aspiration of joint plus the injection into same of some antiseptic or disinfectant; (3) making incision into joint, irrigating and draining same according to the method of Schuller, and (4) Fuller's operation of seminal vesiculotomy. Taking them up separately we might say that it is reasonable to believe, he says, that some cases have apparently been cured by simply aspirating the accumulated fluid from the affected joint; sometimes a single aspiration will suffice, while in other cases the procedure must be repeated at intervals as needed. The aspiration of gonorrheal joints with the injection

of an antiseptic or disinfectant solution has been popularized by Murphy in this country and by Hildebrand and Roux in Europe. Murphy uses a 2 per cent. dilution of liquor formaldehyd in glycerin, and of this solution he injects 5 to 20 c.c. depending on the quantity of fluid aspirated and the size of the joint. Hildebrand and Roux inject tinctura iodid (ʒi to ʒiii) into the joint instead of liquor formaldehyd.

When either or both of the above treatments fail, the joint should either be freely opened, cleansed, packed and drained, or double drainage should be instituted with daily through and through irrigations of 1-5,000 bichlorid of mercury solution. Fuller has recently proposed a new method for curing cases of gonorrheal arthritis by his operation of seminal vesiculotomy. Up to the present time he has performed this *operation 251 times, 122 of which were for gonorrheal metastatic* arthritis, without a single fatality.

### California State Journal of Medicine, San Francisco

*April, XII, No. 4, pp. 129-166*

44 Tuberculous Glands of Neck; Their Relation to Diseases of Nose and Throat. Radical Operation for Their Removal. R. S. Stevens, San Francisco.
45 Psychologic Study of Mentally Defective and Otherwise Exceptional Children. E. B. Hoag, Los Angeles.
46 Therapy of Typhoid. E. O. Jellinek, San Francisco.
47 Roentgen-Ray Dosage. H. E. Ruggles, San Francisco.
48 Vital Statistics. E. Goodman, San Francisco.
49 Medical Situation of New Workmen's Compensation Act. J. R. French, Los Angeles.
50 Principles Governing Indications for Cesarean Section. A. B. Spalding, San Francisco.
51 Hygienic Shoeing—Anatomic Facts Vs. Convention and Style. C. C. Crane, San Francisco.

### Georgia Medical Association Journal, Augusta

*April, III, No. 12, pp. 395-430*

52 Clinical Interpretation and Application of Wassermann Reaction. E. G. Ballenger and O. F Elder, Atlanta.
53 Local Anesthetics, with Special Reference to Novocaine. W. S. Goldsmith, Atlanta.
54 Practical Anesthesia. C. Usher, Savannah.
55 Paramyoclonus Multiplex. Report of a Case. T. S. Clay, Savannah.
56 Abuse of Purgatives Following Abdominal Operations. H. S. Munroe, Columbus.
57 Hemorrhage and Surgical Shock. W. W. Battey, Jr., Augusta.
58 Appendicitis without Appendiceal Symptoms. R. M. Harbin, Rome.

### Journal of Experimental Medicine, New York

*April, XIX, No. 4, pp. 319-416*

59 *Effects of Early Extirpation of Thymus in Albino Rats. A. M. Pappenheimer, New York.
60 Relation of Gastro-Intestinal Tract and Contents to Body-Weight in Rabbits. A. E. Livingston, Ithaca.
61 *Nature of Opsonic Substances of Normal Sera. H. Zinsser and E. G. Cary, New York.
62 *Strain of Spirochaeta Pallida Isolated from Nervous System. H. J. Nichols, U. S. Army.
63 Nitrous Oxide as an Anesthetic in Animal Experimentation. D. H. Dolley, Columbia, Mo.
64 Rapidity of Involution of Active Thyroid Hyperplasias of Brook Trout Following Use of Fresh Sea Fish as Food. D. Marine, Cleveland.
65 **Ferments and Ferment-Inhibiting Substances in Tuberculous* Caseous Material. J. W. Jobling and W. Petersen, New York.
66 *Effect of Dilution of Plasma Medium on Growth and Fat Accumulation of Cells in Tissue Cultures. R. A. Lambert, New York.
67 Pathogenicity of Trypanosoma Lewisi. W. H. Brown, New York.
68 *Penetration of Virus of Poliomyelitis from Blood into Cerebro-Spinal Fluid. S. Flexner and H. L. Amoss, New York.

***59. Early Extirpation of Thymus in Albino Rats.***—One hundred and eight rats were used by Pappenheimer for this study. Of these eighty-two were thymectomized, the remainder serving as controls. He found that removal of the thymus does not produce an arrest or retardation of body growth and development. Qualitative changes in the skeletal system or teeth have not been found. In emaciated weak animals osteogenesis is less active than in healthy rats and the long bones are smaller and more delicate in structure. Such quantitative differences appear to depend in the general nutrition, are equally pronounced in rats whose development is retarded from other causes and cannot be referred specifically to loss of thymus function. No constant or characteristic alterations were detected in the spleen, testes, adrenals or thyroid. Whatever functional correlations may exist between thymus and any or all of these organs are not evident from the occurrence of histologic changes after the removal of the thymus. The relative proportion of lymphocytes in the blood is diminished for the first few weeks after the operation. Pappenheimer has not determined how long this alteration in the leukocytic formula persists.

Two rats were killed 185 days after operation. Minute examination of a complete series of the neck organs, including the thyroid, failed to show any tissue which could be interpreted as thymus. The bones showed no rachitic changes.

61. **Nature of Opsonic Substances of Normal Sera.**—Zinsser's and Cary's experiments show that the albumin fraction or endpiece obtained by the dialysis of normal guinea-pig serum possesses definite opsonic action. This action is often almost equal to that residing in the unfractionated alexin. It is evident, however, only if the reaction maintained during the experiments approximates that of the original serum. By the addition of small quantities of weak sodium hydrate solution to the dialyzed serum they have been able to bring back opsonic action which was not evident in the same end-piece if simply rendered isoconic. They have been unable to reactivate the hemolytic function of end-piece by alteration of reaction.

Their experiments suggest that the opsonic action of the albumin fraction is enhanced by preliminary sensitization of the bacteria with heated normal serum and by persensitization of such bacteria with the globulin fraction. However, they are not positive of this since the slight differences of phagocytic counts on which such an opinion can be based fall within the limits of what they consider experimental error. The fact that the albumin fraction can exert opsonic activity on bacteria but cannot hemolyze blood-cells seems particularly interesting in the light of the fact that alexin can be absorbed by unsensitized bacteria but not by similarly untreated blood-cells. Zinsser and Cary think that their experiments do not point to a differentiation of normal opsonin from alexin, but they believe they indicate that the so-called end-piece can enter to a slight extent into non-specific relationship with unsensitized bacteria and it is therefore active, whereas it cannot enter into a similar relation to unsensitized cells. This conception, however, is tentatively made, since they are studying further the non-specific absorption of alexin or complement by unsensitized bacteria.

62. **Observations on Spirochaeta.**—A strain of *Spirochaeta pallida* isolated by Nichols from the nervous system has shown the following constant characters: (1) thick form; (2) the production of hard, well demarcated lesions with necrotic centers; (3) a characteristic location of the lesion; (4) a short incubation period; (5) a tendency to generalize with lesions of the skin and eye, following local inoculation of the testicle and scrotum. It is suggested that these characters constitute a definite strain of highly invasive power and that a classification of members of the pallida group may be made in accordance with this power.

65. **Ferments in Tuberculous Caseous Material.**—Jobling and Peterson point out that caseous matter obtained from lymph-nodes which have not become secondarily infected contains substances which inhibit enzyme activity. These substances consist chiefly of soaps of the unsaturated fatty acids. The inhibiting substances are present in relatively smaller amounts when the caseous matter has become *secondarily infected*. This is probaly due to the dilution and washing out of the soaps. Ferments are either entirely absent or present in very small amounts, unless the caseous matter has become secondarily infected.

Caseous material from the lungs contains smaller amounts of the inhibiting substances. This may be due to the acuteness of the process which does not permit an accumulation of the soaps or to the binding of the soaps with the ferments. Ferments are present in caseous pneumonia. In the whole emulsion the ferments are less active in an alkaline than in an acid reaction; but removal of the soaps shows that those active in an alkaline reaction are also present in considerable amounts. The previous treatment with iodin of caseous matter from both lymph-nodes and lungs increases the action of the trypsin.

66. **Growth of Cells in Tissue Cultures.**—Dilution of plasma with isotonic solution Lambert says causes a more extensive migration in cultures of cells of the actively migratory type, such as those of spleen and bone-marrow. Dilution with a limited quantity of distilled water produces the same effect. Less actively motile cells are influenced little or not at all by dilution. The effect on cells of the first type is probably due to the reduction in the quantity of fibrin in the clot producing lessened resistance to cell locomotion. Dilution of plasma with either isotonic solutions or distilled water is without effect on cell multiplication as is shown by records of the number of mitoses in living culture preparations. Dilution of plasma with suitable quantities of Ringer's solution causes a marked diminution in the quantity of fat accumulated by the cells. This reduction is to be attributed to the decrease in the quantity of fat in the medium. The accumulation of fat by cells in cultures is therefore not to be regarded as the result of a cell degeneration, but as an accumulation, the source of the fat being the medium in which the cells are growing.

68. **Penetration of Virus of Poliomyelitis.**—It is stated by Flexner and Amoss that the virus of poliomyelitis introduced into the blood may pass indirectly by way of the cerebrospinal fluid to the interstices of the central nervous organs. To reach the cerebrospinal fluid the virus must first penetrate the barrier of the choroid plexus which operation requires time. By the inoculation test no virus was detected in the fluid at expiration of forty-eight hours, only small amounts at the expiration of seventy-two hours, while at the expiration of ninety-six hours the virus had passed more freely. The virus was still detectable in the fluid at the onset of paralysis nineteen days after the intravenous injection. Pathologic conditions of the leptomeninges and the cerebrospinal fluid play an important part in the pathogenesis of epidemic poliomyelitis.

### Journal-Lancet, Minneapolis

*April 1, XXXIV, No. 7, pp. 175-200*

69 *Cholecystitis and Factors that Control Results of Operations C. H. Mayo, Rochester.
70 Dangers of Carbohydrate Over-Feeding Especially with Starches F. W. Schlutz, Minneapolis.
71 Induced Climacteric. F. E. Walker, Hot Springs, S. D.
72 Luetic Mediastinitis: Report of Five Cases. H. Z. Giffin Rochester.
73 Rectal Elimination: Case-Reports. A. Kuhlmann, Melrose.
74 *Non-Papillary Benign Tumors of Bladder E. S. Judd, Rochester.

69. Abstracted in The Journal, January 24, p. 325.

74. Abstracted in The Journal, January 31, p. 405.

### Lancet-Clinic, Cincinnati

*March 28, CXI, No. 13, pp. 357-392*

75 Congenital Tumors of Neck C. E. Caldwell, Cincinnati.
76 Etiology of Pelvic Prolapse, Anatomically Considered. S. Stark, Cincinnati.
77 Case of Roentgen Atrophic Dermatitis and Arsenic Keratosi M. Scholtz, Cincinnati.

*April 4, CXI, No. 14, pp. 393-418*

78 Unrecognized [illegible] Complication of Bezoldt Mastoiditis. G. A. [illegible]
79 Poisons. C. [illegible]
80 Eye Complications Following Small-Pox. L. D. Brose, Evansville, Ind.
81 Mysticisms of Past and Realisms of To-Day in Practice of Medicine. P. L. Gunckel, Dayton.
82 Care of Tuberculosis Patients. C. R Holmes, Cincinnati.
83 Emil Fischer's Theory of Substitution—John J Abel's "Vividiffusion." A. Rohde, Pittsburgh

### Laryngoscope, St. Louis

*March, XXIV, No 3, pp. 161-240*

84 Fixed Sources of Hemorrhage from Tonsillectomy and Its Absolute Control. J. L. Davis, Philadelphia.
85 Gateways of Cryptogenic Infection. Alveolar Processes. W. H. Haskin, New York.
86 Complete Bilateral Bony Occlusion of Both Nasal Choanae. A. O. Pfingst, Louisville, Ky.
87 Case of Purpura Hemorrhagica. E. B. Gleason, Philadelphia.
88 Supplemental Vicarious Menstruation Cured by Submucous Resection of Nasal Septum. W. T. Patton, New Orleans.
89 Removal from Esophagus by Means of an Esophagoscope of Plate of False Teeth Embedded for Eighteen Years. D. B. Kyle, Philadelphia.
90 Death of an Infant Caused by Fragment of Peanut in Left Lung. E. W. Carpenter, Greenville, S. C.
91 Barany's Theory of Cerebellar Localization: Diagnostic Value of Pointing Test in Cerebellar Abscess. P. D. Kerrison, New York.
92 Diagnosis and Treatment of Brain Abscess. W. Sharpe, New York.
93 Effect of Temperature on Endolymph. E. P. Fowler, New York.
94 Eleven Cases of Diphtheria and Pseudo-Diphtheria—Infection in Mastoid Wound. J. J. Thomson, New York.

### Medical Record, New York

*April 11, LXXXV, No. 645-690*

95 *Phenomenon of Pathologic Antagonism: Its Relation to Diabetes Mellitus. H. S. Stark, New York.
96 *The Thymus. O. Lerch, New Orleans, La.
97 Cure of Habitual Constipation by Intraabdominal Use of Oil. W. F. Burrows, New York.
98 Practical Points in Surgery. F. E. Walker, Hot Springs, S. D.
99 *Liver Abscess. A. Jacoby, New York.
100 Internist and Seminal Vesiculitis. T. A. Kenefick, New York.

95. **Phenomenon of Pathologic Antagonism.**—The idea Stark intends to convey by the term "pathologic antagonism" is the tendency of a morbid process to come to a standstill or to disappear on the supervention of another. His interest in this subject arose from an observation of a number of unique and anomalous cases of diabetes mellitus in association with other disorders in which the glycosuria disappeared by reason of the complicating affection.

The cases considered are arranged in three groups, as follows: (a) those in which the glycosuria alternated with some other clinical symptom; (b) those in which the diabetes disappeared on the establishment of some other disease; (c) cases in which a chronic glycosuria disappears permanently after a surgical operation.

Group (*a*).—An example of this group is the following: A chronic glycosuria alternating twice in the same patient with urticaria, without any change of diet or medication. Another was a case in which a glycosuria alternated with the Wassermann reaction. Group (*b*).—As examples are cited the cessation of diabetes after an acute pneumonia, typhoid, dysentery, scarlatina and erysipelas. Group (c) concerns chronic glycosurias which disappear after a surgical operation. Examples are the following: The apparent cure of diabetes after an appendectomy, or after drainage of the bile ducts. Also after extirpation of uterine and ovarian tumors even of a malignant type.

96. **The Thymus.**—Lerch says he never examined a hysteric or neurasthenic patient in whom he did not find an enteroptosis. It is a condition especially suited to favor circulatory disturbances, frequently aggravated by a movable heart. The thymus shares in all of them, giving rise to pressure symptoms and to intoxication. Necessarily the cerebral circulation has to suffer and irritation of the centers, coupled wth the congestion that exists in the abdominal organs and the anemia of the chest may well explain the various symptoms. The treatment bears out this view; that is, measures that influence the general circulation and restore its equilibrium benefit these patients most. The abdomen, usually pendulous, and the abdominal muscles relaxed, have to be restored to normal tone by suitable exercises, to insure an increase of intra-abdominal pressure. Contracted abdominal muscles secure, with the up and down movements of the diaphragm, especially during deep respiration, a thorough massage of the abdominal contents, and restore tone to vessels and aid the heart. Deep breathing is therefore indicated with exercises to strengthen these muscles. Muscular tissue cannot be made at short order, and these patients need, therefore, a substitute to give relief. A well-fitting bandage is the best for this purpose.

Rest in the recumbent posture is another important measure in the treatment of these cases. Only in the most severe cases is continued rest of use. Intermittent rest, one to two hours after the noonday meal, and an early bedtime, are usually sufficient to help restore these patients to health. The blood has to be kept in the upper portion of the body by heart force and muscular tone. The diet has to be regulated according to the climate and season, to the work the patient can still perform, whether he is fat or lean, young or old, affected with gastro-intestinal troubles or free from them. Fresh air is needed in these as in all other cases of sickness.

Organic diseases caused by the chronicity of the trouble or due to other causes has to be treated as in other cases. Thymus extract increases nervous symptoms. Surgery is indicated if medical treatment fails.

99. **Liver Abscess.**—Jacoby cites six cases. One case was due to mechanic injury, indirectly causing a contusion of the liver, and thus furnishing a point of lessened resistance to the action of bacteria. One case was due to the direct extension of the infection from a suppurating and gangrenous gall-bladder, the abscess being formed on the under surface of the liver. Two cases were due to dysentery. In one case autopsy confirmed the presence of the etiologic factor. In two cases no definite etiologic factor could be assigned.

### Mississippi Medical Monthly, Vicksburg

*April, XVIII, No. 12, pp. 227-240*

101 Harmony in Profession. J. A. Davis, Dockery.
102 Mississippi Bureau of Vital Statistics. H. S. Capps, Gulfport.
103 Importance of Early Diagnosis in Uterine Cancer. S. W. Glass, Lyon.
104 Tuberculosis, the Physicians and Laity. H. Boswell, Jackson.
105 Influenza. J. O. Gurney, Tupelo.

### New Jersey Medical Society Journal, Orange

*April, XI, No. 4, pp. 163-216*

106 Cancer Problem. T. S. Cullen, Baltimore.
107 Newer Standpoints in Diagnosis and Treatment of Anemia. K. M. Vogel, New York.
108 Gastric Ulcer. J. M. Cassidy, Jersey City.
109 Sero-Salvarsan Treatment of Paresis and Locomotor Ataxia. O. Lowry, Newark.
110 Nitrous Oxid and Oxygen in Prolonged Anesthesia. C. B. Kelley, Jersey City.

### New Orleans Medical and Surgical Journal

*April, LXVI, No. 10, pp. 707-784*

111 Abdominal Gunshot Wounds: Report of Two Unusual Cases. L. H. Landry, New Orleans.
112 Drug Eruptions. I. Dyer, New Orleans.
113 Pellagra. P. Rayer, Paris.
114 *Urticaria—Experimental Lesion Produced by Local Application of Betaimidazolylethylamin. Its Relation to Intestinal Toxemia. A. Eustis, New Orleans.

114. **Urticaria.**—In the treatment of urticaria Eustis says that the aim should be to prevent the putrefaction of histidin in the intestinal canal, and this can be prevented by not introducing any histidin, or when introduced by overcoming the tendency to intestinal stasis. This latter can best be overcome by an initial purgative. The following has given Eustis uniformly good results:

| | | gm. or c.c. | |
|---|---|---|---|
| ℞ | Hydrarg. chlor. mitis ......... | 2 | gr. iij |
| | Phenolphthalein ............... | 4 | |
| | Pulv. rhei ...................ãã | | gr. vj |
| | M. et caps. No. iij ............ | | |

Sig.: One every half hour at night.

In the Charity Hospital accurate records have been kept of several hundred cases in which this combination has been given and the average time of the first stool has been eight hours after the last dose, with little or no nausea, and colic. As a rule, it is not necessary to give a saline afterward. Daily evacuations of the bowels should be seen to and this can be best accomplished by liquid albolene in 2 or 3-ounce doses, fig paste containing chopped-up senna leaves or agar-agar taken in oatmeal in the morning However, by adding beets, celery, spinach and other articles of diet containing much cellulose to a diet such as outlined by Salomon consisting of tea, coffee, bouillon, lemon and grape juice, potatoes, rice, cereals and plenty of butter and sugar with 200 gms. of bread made of coarse flour and instructing the patients to observe regularity in emptying the bowels and also the taking of a glass of water on rising in the morning, the condition can easily be remedied by overcoming the intestinal toxemia. The intestinal toxemia can easily be judged by frequent examinations of the urine for indican and whenever present in more than a trace, protein food should be eliminated from the diet. A virulent culture of the *Bacillus bulgaricus* has also given good results.

### New York Medical Journal

*April 4, XCIX, No. 14, pp. 661-708*

115 Modern Technic in Urethral Stricture. C. H. Chetwood, New York.
116 Advantages and Disadvantages of Quarantining Hospital Wards for Measles. E. E. Graham, Philadelphia.
117 Dreams. A. L. Benedict, Buffalo.
118 Mischief of Free Medical Service. W. S. Gottheil, New York.
119 Differential Diagnostic Value of Cyclic Indicanuria in Gastro-Intestinal Diseases. G Baar, Carlsbad, Austria.
120 Contrast in Psychanalysis: Three Cases. T. A. Williams, Washington, D. C.
121 Retrourethral Cystoscopic Guide for External Urethrotomy. D. A. Sinclair, New York.
122 Roentgenography of Intestinal Tract. G. Rosenbaum, Philadelphia.
123 Affective Activity, Emotion, as Cause of Various Neurasthenic Bodily Diseases. G. E. Barnes, Herkimer.

*April 11, XCIX, No. 15, pp. 709-760*

124 Psychopathic Children. L. P. Clark, New York.
125 Internal Pachymeningitis in Young Children. A. Gordon, Philadelphia.
126 Hypertrophic Pyloric Stenosis in an Infant: Rammstedt's Operation. Case Report. H. Lilienthal, New York.
127 Toxemias in Genesis of Hyperthyroidism and Their Treatment. C. E. de M. Sajous, Philadelphia.
128 Sixteenth Century Paranoiac. G. E. Price, Philadelphia.
129 Plastic Operation for Restoration of Severed Vocal Cords; Permanent Thyroid Fistula Following Attempted Suicide with Razor. H. Smith, New York.
130 The "Why" of Obesity. F. M. Bell, Ottawa, Canada.
131 Dream Interpretation. H. Crenshaw, Atlanta, Ga.
132 Gum Camphor as Preservative for Urine. J. Rosenbloom, Pittsburgh.

### Surgery, Gynecology and Obstetrics, Chicago

*April, XVIII, No. 4, pp. 401-448*

133 *Resection of Rectum for Cancer with Preservation of Sphincter. C. H. Mayo, Rochester, Minn.
134 *Carcinoma of Lower Lip; Its Diagnosis and Operative Treatment. J. C. Bloodgood, Baltimore.
135 *Operation of Gastrojejunostomy and Principles which Should Determine Its Use. H. J. Paterson, London.
136 Cholecystectomy vs. Cholecystostomy and Method of Overcoming Special Risks Attending Common Duct Operations. G. W. Crile, Cleveland.
137 *Bacteriologic Study of Fifty Cases of Non-Tuberculous Diseases of Bladder and Kidney. V. C. David, Chicago.
138 Treatment of Transplantable Rat Sarcoma by Fulguration. S. P. Beebe and E. V. N. Van Alstyne, New York.
139 Urinary Incontinence in Women, without Manifest Injury to Bladder. H. A. Kelly and W. M. Dumm, Baltimore.
140 Fibroid Tumors of Ovaries: Report of Case. W. D. Fullerton, Cleveland.
141 Mixed-Cell Tumors of Soft Palate: Report of Case. M. G. Sturgis, Seattle, Washington.
142 *Ascending Infection of Kidneys. J. E. Sweet and L. F. Stewart, Philadelphia.
143 Dental Disorders and Peridental Infections: Their Relation to Neighboring Organs. V. P. Blair, St. Louis.
144 *Primary Carcinoma of Liver in Childhood: Report of Case. O. L. Castle, Kansas City, Mo.
145 *Mobilization of Duodenum. A. H. Kanavel, Chicago.
146 *Pituitary Gland in Its Relation to Epilepsy. G. C. Johnston, Pittsburgh.
147 Product of Hospital. E. A. Codman, Boston.
148 Incrustations of Renal Pelvis and Ureter. Report of Four Cases. J. R. Caulk, St. Louis.
149 Gastric Sarcoma. Report of Case. H. J. Hartz, Philadelphia.
150 *Pathogenesis and Treatment of Hernia of Linea Alba. A. V. Moschcowitz, New York.
151 Arthrotomy of Hip. E. M. Corner, London.
152 *Treatment of Scoliosis. A. M. Forbes, Montreal.
153 *Uterine Endoscopy; Aid to Precision in Diagnosis of Intra-Uterine Disease. A. Heineberg, Philadelphia.
154 Laryngectomy Combined with Gastrostomy. F. Torek, New York.
155 Massive Roentgen Irradiation in Gynecology. H. Schmitz, Chicago.
156 Double Lever Instrument for Open Reduction of Fractures. F. H. Coerr, New York.
157 *Head Injuries. Some Conclusions. W J. Anderson, Chicago.

133. Abstracted in THE JOURNAL, January 24, p. 328.

134. **Carcinoma of Lower Lip.**—Bloodgood's article is an analysis of about 200 cases. For the details the original should be consulted. Briefly, he says our experience shows that one should make the attempt at the radical removal of the lesion on the lip and glands of the neck at any stage of the disease whether the lesion is primary or recurrent. No necessary mutilation should be shunned. Every now and then one will accomplish cures in apparently desperate cases. This, however, is surgery as a last resort, and such surgery would not be necessary if patients were educated to seek advice early and if the profession were trained to perform the proper operation in this early stage. In fact, we have the evidence here to show that lesions of the lower lip properly excised within one month from their onset should result in almost 100 per cent. of cures. The failures to cure in this group of 200 cases are due not only to delay on part of the patient, but to bad treatment on part of the profession. These two evils can and should be corrected. It is really a very simple matter.

135. Abstracted in THE JOURNAL, Nov. 22, 1913, p. 1928.

**137. Non-Tuberculous Diseases of Bladder and Kidney.**—Attention is called by David to the varying morphologic and cultural characteristics of *B. coli* and allied organisms, and staphylococci found in infections of the bladder and kidney. Anaerobic organisms were present in 20 per cent. of the cases examined in which a growth was obtained and occurred four times in pure culture. Anaerobic organisms are described as follows: a very fine Gram-negative bacillus growing only on blood media; a Gram-negative pigment-producing bacillus, and associated with it a Gram-negative coccus, corresponding to no known described type, *Funduliformis; Staphylococcus parvulus*, and Gram-positive staphylococci.

**142. Ascending Infection of Kidneys.**—An extensive network of lymph-vessels and channels exists in the mucosa and submucosa in the external coats of the bladder and the ureters and in the entire structure of the kidney. This network in the ureter anastomoses freely with the lymphatics of the bladder at the one end and with the lymph apparatus of the kidney at the other end. An ascending infection travels through this lymphatic system, not through the lumen of the ureter. The blood-vessels can be excluded because the veins of the bladder and the veins of the ureter, for the greater part, open into the general venous system, not into the venous system of the kidney. The lumen of the ureter can be excluded, because if the lumen be open to infection, the infectious process is traceable in the lymphatic system, not along the mucosa of the ureter. If the lumen be closed to infection the process extends to the kidney in the usual way; if the lumen be open to infection, but the lymphatics not in contact with virulent infection, as when the ureter is passed through the pancreatic duct, there is no ascending infection; if the lumen be open but the continuity of the lymphatics be interrupted, infection does not ascend; and finally, if the kidney pelvis be directly connected with the gut, the general infection, characteristic of an ascending infection of the kidney, does not occur.

From the point of view of the practical surgeon it would seem that these results would be of service in the consideration of the possibilities of any infectious process involving the lower genito-urinary tract or the pelvic organs in general; certainly the cystoscopist must transfer his attention from the general question of cystitis to the particular one of the local lesions caused by the cystitis, their extent and location. The possibility of the effective local treatment of ulcerated processes of the bladder is also suggestive.

**144. Primary Carcinoma of Liver in Childhood.**—Castle's case was one of pedunculated primary parenchymatous adenocarcinoma of the liver in an infant 10½ months old. It is the first case reported in which complete surgical excision was done. There was a good surgical convalescence, with death sixteen days after operation from symptoms of acute enteritis. No post-mortem examination was made.

**145. Mobilization of Duodenum.**—Instead of the laborious and inexact method of palpation from above, Kanavel turns up the colon, nicks the peritoneum, separates the edges with the index-finger and raises the duodenum with the attached head of the pancreas from its bed. The entire head of the pancreas can be held in the hand and in case of doubt a section removed for microscopic examination. The duodenum can now be rolled up and the site of the entrance of the common gall-duct examined from behind. The mobilization and exposure is so free that in thin individuals, at least, a stone could be removed if it were thought advisable, although Kanavel has not had an opportunity to test it. In the obese, owing to the excessive retroperitoneal fat, the procedure is somewhat more difficult, although Kanavel has used it for examination with satisfaction.

A word of warning is given against violent traction or handling since it is well known that any extensive manipulation of the duodenum and pancreas is conductive to shock, possibly because of their close association with the sympathetic plexus. It has seemed to Kanavel that in the case in which he has exposed the duodenum in the manner the patients described have suffered more shock than is usual after a laparotomy. After the examination is complete a single fine catgut suture closes the rent in the peritoneum.

146. Abstracted in The Journal, November 1, p. 1659.

**150. Hernia of Linea Alba.**—A small vertical incision is made by Moschcowitz over the center of the so-called hernia. The skin and subcutaneous fat are divided and retracted, thereby exposing a lump of fat. Search is now made for the blood-vessels coming through the hiatus, accompanied by a larger or smaller piece of fat, directly continuous with the fat of the falciform ligament. Usually it is found on the left side of the protrusion, and this vessel is caught and ligated. The fat is now teased apart in order to be absolutely convinced that there is no true sac. The shreds of fat are ligated to obviate a secondary hemorrhage. The ligatures are placed close to the bottom of the hole in the transversalis fascia. The stumps are pushed back into the hole and the latter closed with one or two stitches. Finally the skin is closed in the usual manner.

**152. Treatment of Scoliosis.**—Forbes advocates the rotation treatment for the physiologic reduction of the deformity of scoliosis. The practical application of this form of treatment is best carried out by rotating the patient by means of the arms toward the side of the convexity of the organic (if dorsal) deformity. This may be done while the lower extremities are flexed on an already flexed spine. This attitude is best procured in the recumbent position. Correction having been produced in this manner it must be maintained by the use of a plaster-of-Paris or celluloid jacket. If maintained for a sufficient length of time and under suitable conditions the law of Wolff can be depended on to assure correction of a deformity for the correction of which we are without knowledge of forcible means.

**156. Uterine Endoscopy.**—Heineberg has devised an instrument—the uteroscope or uterine endoscope—which enables one to explore the cavity of the uterus and carefully inspect the entire endometrium. It is not recommended as a panacea for all diagnostic ailments, but as an aid in determining the cause of some uterine diseases of obscure origin. Through its employment Heineberg believes it should be possible to distinguish, with a greater degree of certainty, such pathologic conditions as glandular hyperplasia, uterine polyps, retained products of conception, submucous fibroids and malignant tumors of the endometrium. The microscopic changes occurring in the mucosa during menstruation might also be observed in favorable cases. The uteroscope consists of an endoscopic tube, irrigating attachment and obturator lighting attachment as in Young's urethroscope.

**157. Head Injuries.**—It is Anderson's belief that the expectant plan of treatment for basal skull fracture is the best and that the only indication for decompression with a positive diagnosis of a straight basal fracture is that after the patient has been under observation with the coma and temperature the same the pulse is found to advance from 40, 60 or 80 to 120 or more. Spinal puncture, when used intelligently, accomplishes about as much as a decompression operation in basilar fractures.

### Tennessee State Medical Association Journal, Nashville

*April, VI, No. 12, pp. 451-500*

158 Gall-Calculus or Cholilithiasis. J. B. Haskins, Chattanooga.
159 Chronic Stenosis of Esophagus Due to Simple Inflammation. R. McKinney, Memphis.
160 Treatment of Tabes Dorsalis. A. W. Harris, Nashville.
161 Glaucoma. E. C. Ellett, Memphis.
162 Treatment of Renal, Ureteral and Vesical Calculi. W. T. Black, Memphis.
163 Roentgenograms Showing Bismuth Meal in Normal Individuals Two, Six and Eighteen Hours After Its Ingestion. J. H. Maury, Memphis.

### Wisconsin Medical Journal, Milwaukee

*March, XII, No. 10, pp. 307-344*

164 *Acute Ileus—Consideration of Enterotomy and Enterostomy in Its Treatment.* E. Quick, Milwaukee.
165 Two Cases of Otitic Brain Abscess Showing the Necessity of *Early Mastoid Operation.* F. Pfister, Milwaukee.
166 Multiple Tumors of Spinal Cord. Case Report. L. M. Warfield, Milwaukee.
167 *Preoperative Treatment of Cardiovascular Disease by Home-Made Nauheim Method to Conserve the After-Lifetime.* J. R. McDill, Milwaukee.

## FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

### British Medical Journal, London

*March 28, I, No. 2778, pp. 693-744*

1 *Systolic and Diastolic Blood-Pressure Estimation; Special Reference to Auditory Method. J. A. MacWilliam and G. S. Melvin.
2 Systolic and Diastolic Blood-Pressures in Aortic Regurgitation. J. R. Murray.
3 Three Cases of Pancreatic Cyst. H. B. Robinson.
4 *Renal Cyst Causing Chronic Intestinal Obstruction. E. C. Bevers.
5 *Subcutaneous Injections of Emetine in Pulmonary Tuberculosis. J. S. Raeburn.
6 Economical Treatment of Inebriates. A. M. Rosebrugh.
7 Hygienic Aspect of Coal-Mining Industry in United Kingdom. F. Shufflebotham.

1. **Systolic and Diastolic Blood-Pressure Estimation.**—The auditory method, first suggested by Korotkoff of St. Petersburg in 1905, is endorsed by the authors, as far as systolic pressure is concerned. The chief advantages of the auditory method is that the sense of hearing is substituted for the somewhat more fallible tactile sense. The simplicity, ease, and rapidity of this method are strong points in its favor. It gives all the information that is to be obtained by more cumbrous and time-consuming methods, and that with greater precision, the index being a much sharper one than is present in other methods; it also causes less disturbances to the patient than slower methods, which involve a longer compression with the armlet. It is greatly superior to the palpatory and sphygmographic methods that have been proposed. The authors are convinced that all the evidence as to diastolic pressure gained by the other methods, and much more also, can be better obtained by the quick and simple auditory method. The diastolic estimation in this way is as easy as that of systolic pressure, and is relatively little, if at all, complicated by certain sources of fallacy (for example, state of arterial wall) which may come into question in systolic estimation.

4. **Chronic Obstruction Caused by Renal Cyst.**—The interest of Bevers' case lies first in the difficulty of diagnosis. The swelling appeared to be cystic and to have a point of attachment in the left lumbar region. The diagnosis made before operation was that of a mesenteric cyst, and even when the abdomen was opened this was the impression given: it was only when the left kidney came into view that the true nature of the case became clear. A renal condition had not been considered, as there was no swelling or resistance in the left loin and the latter area was resonant; also the extreme mobility of the tumor and its obvious intraperitoneal nature seemed opposed to a condition connected with the kidney.

The second point of interest in this case is the chronic intestinal obstruction produced. This, was brought in two ways; in the first place, the splenic flexure of the colon was constricted where it passed round the neck of the cyst, and in the second place, the heavy cyst itself was pressing on the descending colon.

5. **Subcutaneous Injections of Emetine in Phthisis.**—While Raeburn does not consider that the emetine has any effect on the tubercle bacillus he believes it is a valuable addition to our weapons for reducing congestive conditions in the lungs, and that, therefore, it is both a preventive and curative agent in tuberculosis. He uses ampoules, which contain ½ gram of emetine in 15 minims of distilled water. By diluting this in four parts of water, 1 minim equals 0.04 cg., and Raeburn has come to consider 4 minims of this dilution a suitable dose to give when the object is to control expectoration or lessen congestion.

Raeburn confined himself to cases of hemorrhage. Some of the cases in which he used it had only slight and occasional hemorrhage but copious expectoration, and it was observed that not only did all traces of blood disappear from the sputum, but that the sputum itself decreased or ceased. This observation induced Raeburn to employ the drug in some cases of copious expectoration alone and the results have been sufficiently striking to justify his mentioning them to the profession, in the hope that others will be induced to further investigate the properties of emetine in relation to its effects on congestive and inflammatory conditions of the lungs. He has now used it in over forty cases, and has endeavored to note its effect both on hemorrhage and on expectoration.

### Dublin Journal of Medical Science

*March, III, No. 507, pp. 161-240*

8 Lacerations of Perineum and Their Treatment. E. H. Tweedy.
9 Fatality after Salvarsan. G. E. Nesbitt.
10 Case of Fatal Anemia. G. Peacocke.

### Indian Medical Gazette, Calcutta

*March, XLIX, No. 3, pp. 85-128*

11 Emetine and Treatment of Amebic Dysentery and Hepatitis Including Liver Abscess. L. Rogers.
12 *Series of 101 Cases of Abscess of Liver. E. O. Thurston.
13 Operative Treatment of Hepatic Abscess. E. A. R. Newman.
14 *Emetine and Liver Abscess. A. H. Nott.
15 Emetine in Amebic Dysentery. D. Munro.
16 Amebic Dysentery in Darjeeling District and Its Treatment. C. Baldwin.
17 *Treatment of Liver Abscess. J. D. Sandes.
18 *Emetine and Ipecacuanha: Their Amebacidal Value in Pathogenic Amebiasis. R. M. Carter.
19 Emetine in Hepatitis and Amebic Abscesses of Liver and Spleen. K. K. Chaterji.
20 *Experience in Use of Emetine in Treatment of Amebic Dysentery. A. Whitmore.
21 Emetine Treatment of Dysentery and Allied Liver Conditions in Kathiawar. A. Hooton.
22 Employment of Emetine in Dharwar District. C. T. Hudson.
23 Three Cases of Dysentery Treated with Emetine. E. C. G. Maddock.

12. **Abscess of Liver.**—Of 35 patients with liver abscess treated by Thurston with ipecacuanha, 21 were only aspirated: of these 17 were cured, four died. Five patients were treated by aspiration followed by drainage; of these 3 were cured and 2 died. Nine were treated by drainage alone; among them 5 were cured and 4 died. The results are therefore largely in favor of aspiration alone. Of 32 patients treated with emetine, 27 were subjected to aspiration alone; of these 20 recovered and 7 died; 2 were dealt with by aspiration followed by drainage; 1 patient was cured, the other died. Patients treated by drainage alone were 3; of these all recovered; these were all abnormal cases. Adding together these two series of cases, we get for aspiration alone a total of 48 cases, of which 37 patients were cured and 11 died, i. e., a percentage mortality of 23 per cent. For aspiration, plus drainage 7 cases with a mortality of 3, i. e., 43 per cent. Of 12 cases treated by drainage alone, 4 died, a mortality of 33 per cent., a verdict very much in favor of aspiration alone.

As to the value of the injection of quinin solution into the abscess cavity, 14 patients were treated by this method; of these 11 were cured and 3 died, or a percentage of 78.57 per cent. and 21.42 per cent., respectively. Cases without quinin numbered 33 with 25 cures and 8 deaths, a relative percentage of 75.7 per cent. and 24.3 per cent. Thurston's impression is that cases treated with quinin were more likely to require a second aspiration. His present practice is to inject a grain of emetine hypodermically immediately after the aspiration. At this time there is presumably a flow of serum, etc., toward the abscess cavity owing to the loss of pressure produced by the removal of the pus and the emetine is more likely to attack the young and active amebae in the advancing wall of the abscess which are a more important factor than those on the inner side.

Thurston urges to aspirate repeatedly in preference to drainage, and if an abscess is almost pointing do not aspirate then, for leakage will probably take place through the puncture with the almost certainty of another infection being added. In cases in which one has eventually to drain, make a small incision through which a portion of a long rubber tube is inserted and then closely stitched to the [illegible]. The other end of the tube is placed in a bottle [illegible] by the side of the bed and the pus will then [illegible] there is very much less risk of septic infection. [illegible] apparatus is at all necessary. In cases of [illegible] when a liver abscess has been opened by [illegible] recently been scrubbing out the cavity [illegible] suturing completely; all the cases so treated [illegible] healing by first intention, but the cure [illegible]

14. **Emetine and Liver Abscess.**—In Nott's opinion aspiration is called for in that very serious class of large acute liver abscesses with acute dysenteric symptoms and grave general depression and the earlier this is performed the better. He is convinced that drainage with excision of a portion of a rib in this class of case is a very fatal procedure. He advocates repeated aspirations with the exhibition of emetine both subcutaneously and into the cavity of the abscess after aspiration, though probably the former alone is equally efficacious and more certain. This procedure in some cases will be sufficient to bring about recovery, in others it will enable the general strength to be recuperated, the fever to largely subside and it may be possible after several aspirations to drain by the open method with some chance of success.

For large single abscesses of a less acute character seen in a later stage and in patients in reasonable condition, Nott would aspirate at least once, but thinks that under good conditions as regards maintenance of asepsis there is a good deal to be said for immediate incision and drainage. For smaller superficial abscesses such as those met with in the left lobe of the liver, if diagnosed in an early stage he would aspirate, in a later stage when the skin is involved he would incise.

17. **Treatment in Liver Abscess.**—Aspiration is Sandes' method of choice and he says should always be attempted even in apparently desperate cases. The puncture should be made in the posterior axillary line as high up as possible. No general anesthetic should be given and 1 grain of emetine should be injected hypodermically while the patient is in the operating-room. Incision and drainage should be performed for the abscesses of the left lobe and abscesses that are pointing, particularly if there is no great general enlargement of the liver. Free drainage by large rubber tubes should be provided. A combination of these methods is indicated when aspiration has not effected a cure.

18. **Emetine and Ipecacuanha.**—Carter's experience of abscess formation in amebic hepatitis leads him to consider it advisable always to suspect all cases of chronic pyrexia of uncertain origin with leukocytosis occurring in the tropics as being of the nature of amebic hepatitis and to treat them accordingly. By emetine treatment he considers it is possible not only to cure amebic dysentery giving rise to liver abscess viâ amebic hepatitis, but to check abscess formation in its earliest stages. He finds on the other hand, that once a liver abscess has formed, the value of emetine has ceased and operative measures are alone sufficient. He has not noticed any marked curative acceleration of the condition of an amebic abscess after drainage due to amebacidal action of the alkaloid. In such cases, however, he occasionally administers emetine alone where there is any difficulty in drainage of the wound, to prevent amebal invasion of the external wound that rarely occurs.

Emetine treatment being a more rigorous and scientific administration of the specific amebacide, tends to diminish the number of ameba carriers in a community. If the drug is administered in the early stage of pathogenic amebiasis in sufficiently lethal doses it has a high economic value to the state, reducing the further incidence of amebiasis.

In a series of 150, the average total dosage of emetine to cure a case was 3½ grains and 2 grains, respectively. Of the patients that died, the average duration of the disease before the patient sought hospital treatment was forty-four and one-half days. The average total emetine given before death was 4¼ grains. The dose varied from ½ grain per diem to 1 grain per diem. All patients received pulv. ipecac 15 to 30 grains three times a day in salol-coated pills; these were given half an hour after taking 15 to 20 minim of tinct opii. Other drugs used were bismuth salicylate, bismuth subnitrate given in conjunction with tannic acid and catechu.

20. **Emetine in Dysentery.**—In the thirty-four cases with which Whitmore's paper deals the treatment adopted has been injection of emetine, generally in ½-grain doses twice a day, until the stools are reduced in frequency to two or three in twenty-four hours, and are free from mucus and blood; so that on a careful microscopic examination the stools appear to be normal, soft stools, save perhaps for some undigested food material.

In the majority of the thirty-four cases acute dysenteric symptoms have ceased and the stools assumed a normal character after four or at the most five days of hypodermic emetine treatment. For the rest of their stay in hospital the patients are given small doses (grains x to xv) or pulv. ipecac., twice or three times a day, unless treatment for some other disease such as malaria is required.

### Lancet, London

*March 28, I, No. 4726, pp. 877-946*

24 *Physiology and Pathology of Uterine Hemorrhage. H. B. Whitehouse.
25 Anesthetics and Diagnosis. J. Blumfeld.
26 *Operations for Hemorrhoids: Review of 850 Cases. A. Neve.
27 Effects of Drinking-Water on Causation of Dental Caries in Schoolchildren. J. B. Cook.
28 Case of Malarial Coma Lasting Forty-Six Hours: Recovery. A. G. Tresidder.

24. **Uterine Hemorrhage.**—The experiments by Whitehouse appear to show that the uterine secretion in rabbits, at least, is under the control of the ovaries both as to amount and physiologic action. The normal secretion apparently aids coagulation of the blood—a point of interest when it is remembered that proestrum in this animal is not associated, as a rule, with external hemorrhage. The secretion also appears to stimulate estrum. Bond's experiments have shown that when the fluid is pent up, as in artificial hydrometra, estrum is frequent and prolonged, and his investigations tend to confirm Bond's observations. It appears possible, therefore, that uterine secretion, stimulated and controlled by an ovarian hormone, is partly absorbed and produces that dilatation of vessels which is characteristic of the late stages of proestrum and immediately precedes estrum. Whether this is the case with the human female, Whitehouse says it is only possible to surmise, but with the close analogy of menstruation to proestrum it is certainly possible. At the same time, clinical experience has shown that a period of estrum or sexual desire may occur in human species quite independently of both uterus and ovaries, as is the case when these organs have been removed singly or together at an early period of married life.

Concerning heterogeneous extracts prepared from the uterine endometrium and from the ovarian stroma and corpus luteum Whitehouse has been unable to satisfy himself that these have any effect in stimulating the onset of estrum or in accelerating menstruation. In six women who received intramuscular injections of these extracts during the premenstrual period, no alteration was noted either in the duration of the cycle or length of the actual menstrual period. Whitehouse is convinced, however, that there is ample evidence available to show that normal proestrum and menstruation are under the control of the ovary and its associated endocrinous glands.

26. **Operation for Hemorrhoids.**—Comparing the three chief methods of operations Neve considers that the clamp is suited for all cases but that the very slight and pedunculated cases are as well treated by ligature, excision and suture. His experience of Whitehead's method is limited to twenty cases. He has no use for it. He says it is obviously only needed in the more severe cases with piles all round the circle. In his last 500 cases many very severe and affecting the whole pile-bearing area, he has failed to see one which could not be adequately treated by the clamp and cautery. He emphasizes the importance of the following details: The anus should be very thoroughly dilated and this should occupy at least four minutes by the clock. Each pile should be gripped with a suitable catch forceps and drawn down and out by an assistant. Beginning at the top pile the clamp is applied and screwed very tight. If there are only two or three not bulky piles it is applied with the blades longitudinal to the rectum—gripping high up the pedicle, crushing into a line or strip 1½ inches long, then cutting off with curved scissors and very thoroughly cauterizing with the actual cautery, used almost, but not quite red hot. Each pile should take at least two minutes to crush and burn. After the clamp is released care should be taken not to drag on the wound and pull it open. If piles are protruding and inflamed or thrombosed it is often practicable to apply the clamp parallel to the anus, thus bringing the rectum down into apposition with the margin. If the piles are

numerous and large, Neve prefers to crush some in a longitudinal and the alternate ones in a horizontal direction so as to prevent the contraction and yet remove efficiently. The parts are then gently pressed up. At night in perhaps 10 per cent. of the cases the catheter is required, but almost never subsequently. On the fourth day a dose of castor oil is administered.

### Annales de Médecine et Chirurgie Infantiles, Paris

*March 15, XVIII, No. 6, pp. 177-212*

29 Need of "Social Service." (A propos de dépopulation.) E. Périer.
30 Paratyphoid Bacillus Infection in Infant. L. Lagane.
31 *Neosalvarsan for Infants with Inherited Syphilis. (100 Injections par les veines jugulaires et épicraniennes chez des nourrissons et des enfants du premier âge, appliquées au traitement de la syphilis héréditaire.) G. Blechmann.
32 Correction of Undescended Testicle. (Orchidopexie dans le traitement chirurgical de l'ectopie testiculaire inguinale.) M. Ayguesparsse.

31. **Intravenous Treatment of Inherited Syphilis in Infants.**—Blechmann reports that injections of a solution of neosalvarsan into the jugular or temporal veins are easily made, even on small infants, and have a remarkable curative action. He injects less than 0.01 gm. per kilogram at first and gradually increases to a final dose of 0.01 gm., making the injections at intervals of one or two weeks, in series of five or seven injections, then suspending them for a period of six or seven weeks and then commencing anew. In nearly all infants the external jugular vein is prominent, especially during inspiration and when the child cries. The veins in the scalp, particularly the temporal veins, are unusually prominent with inherited syphilis and can be utilized for the injection, but are less convenient. He has made a hundred such injections and all without by-effects, except in one instance a syncopal condition developed at the second injection, but the child rapidly recovered under camphorated oil and epinephrin and showed no further ill effects. He has never found it necessary to expose the vein for the purpose. He says of the curative effect that it was remarkably successful.

### Archives des Maladies de l'Appareil Digestif, Paris

*February, VIII, No. 2, pp. 61-120*

33 *Study of Movements of Intestines by Perfusion with Locke's Fluid. R. Glénard.
34 Paroxysmal Total Contraction of Stomach; Part of Contents Flung into Esophagus and Vomited or Not at Will; Cancerous Pyloric Stenosis Found at Operation. A. Mathieu.

33. **Study of Isolated Perfused Intestine.**—Glénard gives an illustrated description of the technic with which he isolates the small intestine in rabbits and keeps it functioning apparently normally by forcing Locke's fluid continuously through its vessels. The bowel keeps functioning for several hours and its movements can be recorded by the moving picture apparatus and its behavior under the influence of various physical, chemical and other factors, applied to the peritoneal surface or the lumen or in the circulating fluid. Conditions seem to be approximately normal except that the movements proceed faster than usual, probably owing to the absence of inhibiting influences. Most purgatives proved equally efficient whether they were deposited in the lumen of the bowel or injected into the circulating fluid; magnesium sulphate seemed to paralyze the bowel.

### Archives de Médecine des Enfants, Paris

*March, XVII, No. 3, pp. 161-240*

35 *Evolution of Surgical Tuberculosis in Infants. Froelich.
36 Vaccination against Scarlet Fever. M. de Biehler.
37 Vulvovaginitis in Children. J. Comby.

35. **Surgical Tuberculosis in Infants.**—Froelich remarks that in general surgical tuberculous processes develop in infants about the same as in older children, but they have a few special features, especially a tendency to hypertrophy in bone and joint affections, and the process opens and sloughs off unusually early. The fistula period is very short. In infants the process is frequently in the shaft of the bone, while in older children the epiphysis is almost invariably attacked. When the hip-joint is involved, dislocation occurs early in infants. In the knee and occasionally in the elbow an acute form of tuberculous arthritis may develop in infants; it runs a rapid course and heals soon after evacuation of the pus, leaving very little stiffness. When an infant has a surgical tuberculous process in the bones, it often affects several bones at once, but this does not seem to render the prognosis graver. In differentiation the main point is to exclude syphilis and the staphylococcus. The lesions heal more rapidly and in greater number as the infants grow older; the mortality is about 10 per cent. Tuberculous lymph-nodes run an acute course and leave scarcely any trace. Tuberculous processes in the viscera and peritoneum run the same grave course as in older children. Under other conditions the tendency to spontaneous healing should render the surgeon conservative in his treatment much more so than in older children. The testicle is so often the seat of a tuberculous process that this may be regarded as a special privilege of infancy. The entire gland may be invaded but the prostate escapes.

### Presse Médicale, Paris

*March 14, XXII, No. 21, pp. 201-212*

38 Leprosy in Rats. E. Marchoux.
39 Diagnosis of Leprosy. L. M. Pautrier.
40 Syphilis as Factor in Disease of Aorta. (Du rôle étiologique de la syphilis dans les aortites chroniques avec ou sans insuffisance aortique et dans la néphrite hydrurique.) C. Lian and A. Vernes.

*March 18, No. 22, pp. 213-220*

41 History and Clinical Experience of Kala Azar. C. Nicolle.
42 Abbott's Method of Treating Curvature of the Spine. J. Calve.

*March 21, No. 23, pp. 221-228*

43 Deformities and Rachitis in Rabbits Born of Thyroidectomized Parents. (Rachitisme et dystrophies osseuses observés chez de jeunes animaux nés de procréateurs éthyroïdés.) H. Claude and J. Rouillard.
44 Organ-Cell Producing Property of Cancer Cells. (Puissance organogénique de la cellule cancereuse.) M. Letulle.

### Revue de Gynécologie, Paris

*February, XXII, No. 2, pp. 81-160*

45 *Present Status of Hysteropexy. (Les hystéropexies actuelles et le lieu d'élection pour le passage intrapariétal des ligaments ronds dans l'opération de Doléris.) G. Rouhier.
46 Aberrant and Remote Fibromas Originating in the Uterus; Two Cases. Goullioud.

45. **Fixation of the Uterus.**—Rouhier protests against all methods which fasten the uterus directly, or which are applied without having the abdomen open before one. He says that the principle of transperitoneal fixation of the round ligaments is superior to all others, but cases are on record in which this principle, applied according to Doléris' technic, entailed sudden hemorrhage or strangulation of the bowel. Analysis of the case shows, however, that the trouble is due to the method having been applied in the face of contra-indications such as genital prolapse. Study of conditions on the cadaver and at operations has shown that all such by-effects can be avoided by drawing the round ligaments through the space between the two tendons of the rectus below. It is easily found and it is plugged by adipose tissue which readily yields to the transfixing forceps. At this point there are no vessels to be injured; it is best reached through a transverse suprapubic incision.

### Berliner klinische Wochenschrift

*March 16, LI, No. 11, pp. 481-532. Ehrlich-Behring Number.*

47 *Medicine and Science. C. Richet.
48 Reminiscences of Introduction of Antitoxin. O. Heubner.
49 Student Days with William Welch. (Lebenserinnerungen aus dem Breslauer Sommersemester 1877.) C. J. Salomonsen.
50 Is Smoking Harmful? (Ist das Rauchen schädlich?) P. K. Pel.
51 *Treatment of Syphilis. E. Lesser and von Zeissl.
52 Free Lipoids Demonstrated in Serums by Activation with Cobra Venom, Especially in Tuberculosis. A. Calmette.
53 Lipoids as Factor in Coagulation of the Blood. J. Bordet and L. Delange.
54 Metachromatic Bodies in Acid-Resistant Bacilli. V. Babes.
55 Transformation of Diphtheria Bacilli. P. H. Römer.
56 Epidemiology and Pathology of Poliomyelitis. S. Flexner.
57 Present Condition of a Two-Years' Old Strain of Connective Tissue. A. Carrel.
58 Application of Certain Cultivation Methods to the Study of Infectious Diseases. H. Noguchi.
59 The Lack of Stability of Conditional Reflexes. (Die Labilität der inneren Hemmung bedingter Reflexe.) J. P. Pawlow.
60 Roentgenotherapy of Rhinoscleroma. (Ein mit Vaccin erfolglos behandelter und durch Anwendung physikalischer Behandlungsmethoden gebesserter Fall von Scleroma respiratorium der Nase und des Rachens.) H. Mestscherski and F. Grintschar.
61 Parotitis Secondary to Gastric Ulcer. (Akute Entzündung der Ohrspeicheldrüse im Anschluss an Unterleibsaffektionen.) S. Laache.
62 *Presenile Involution of Mammary Gland. E. Hedinger.
63 Pathogenesis of Urticaria. J. Jadassohn and L. Rothe.
64 *Pains from Compression of Nerves by Varicose Veins. (Phlebogene Schmerzen.) L. Edinger.

65 *Vaccination against Tuberculosis. (La vaccinazione preventiva per immunizzare l'uomo contro la tubercolosi.) E. Maragliano.
66 Substance Causing Wassermann Reaction a Product of the Lymphocytes. A. v. Wassermann and C. Lange.

*March 23, No. 12, pp. 533-580*

67 *Salvarsan Alone in Treatment of Syphilis. (Reine Salvarsantherapie.) W. Wechselmann.
68 *Fundamental Problems in Treatment of Syphilis. A. Blaschko.
69 Modern Treatment of Recently Acquired Syphilis. F. Bodländer.
70 The Breslau Epidemic of Infectious Erythema. L. Tobler.
71 *Splenectomy in Pernicious Anemia. F. Port.
72 Operative Treatment of Paralysis. (Zur Lähmungstherapie.) G. A. Wollenberg.
73 *Kidney Disease and Tuberculosis. (Nierenkrankheiten und Tuberkulose.) W. Karo.
74 New Hemoglobin Scale. (Hämoglobinbestimmungsmethoden.) N. L. Petersen.

47. **Medicine and Science.**—In congratulating Ehrlich on his sixtieth birthday Richet remarks that the philosophical conclusion that can be drawn from Ehrlich's work is the necessity for medicine to depend on the experimental sciences to make progress. The clinic in the special case always has the last word. The physician, the surgeon, the obstetrician, the ophthalmologist have no right to neglect what old empiricism has taught them and what they learned under their professors. But if they want to do still better, unearth some new truth or discover some new remedy, they must interrogate living nature and get experiences outside of their clinical practice.

51. **Syphilis.**—Lesser recalls that it is only eleven years since syphilis was first transmitted to animals, and only nine years since the causal germ was discovered, then the Wassermann reaction and then salvarsan four years ago. Medicine has no other such a seven-year record in its entire history. We are able now, he says, to abort the disease and to determine with the Wassermann reaction when the cure is complete. By curing it up quicker the infection of others is prevented and thus we have advanced a long way toward the goal of eradicating the disease. He says of Mentberger's compilation of eighty-seven deaths for which salvarsan seemed to be directly responsible, that this is a very small number in comparison to the thousands who have been treated with salvarsan, even admitting that not all of the fatalities have been published. In these cases, neither the phase of the syphilis nor the constitution of the patients nor the dose of the salvarsan has thrown any light on the fatality, and we are still entirely in the dark as to the cause of the fatal outcome. Two in the list did not have syphilis, and in 33.3 per cent. the fatality followed the first injection of salvarsan so there could not have been any cumulative action. He further emphasizes that defective technic can also be positively excluded. He had a patient present the same train of symptoms, paresthesia, headache, vomiting, convulsions and coma, but venesection and repeated infusion and enemas of salt solution tided him past the danger point and he recovered. He advises saline infusion in all cases showing even slight disturbance after salvarsan. Milian has reported benefit from epinephrin injected subcutaneously when there were symptoms suggesting pressure on the brain after salvarsan. Mentberger's compilation included a further group of 187 fatalities in which salvarsan was only the indirect or immediate cause. Thirty-nine of the patients were nonsyphilitics; in some of the others there was an excessive reaction in some vital organ affected by the syphilis.

Von Zeissl has never had any mishaps in his experience with 1,000 patients treated with salvarsan, and ascribes this to his careful preliminary examination of the entire body, especially heart, kidneys, liver and fundus of the eye, refraining from giving salvarsan if anything is found wrong outside of the syphilis. He graduates the dose to the age, sex and weight, and keeps the patient in bed for a day or two afterward, regulating the diet to permit nothing incompatible with arsenic. The interval between injections should never be less than eight days and the patients should be kept under conscientious supervision for two or three years. He always dissolves the salvarsan in distilled water and prepares it as short a time as possible before it is administered. Another point on which he insists is that mercury and salvarsan should never be given at the same time. As an illustration of the necessity for discrimination in selecting patients for treatment with salvarsan, he says a certain woman was impatient to be relieved of a papulous syphilid which was yielding very slowly to mercurial injections. She insisted on being given salvarsan, but von Zeissl temporized and refused, telling her that she was too much debilitated, ordering a course of tonics, promising to give her the salvarsan as soon as she had gained in weight. An hour later she developed fatal hemiplegia.

62. **Presenile Involution of the Breast.**—Hedinger reports five cases in which the breast was removed on account of chronic local pain, and nothing was found to explain it except signs of presenile involution.

64. **Neuralgia from Hidden Varicose Veins.**—Edinger reports three cases in which sciatica or rheumatism had been diagnosed from the chronic pain, but years of treatment had failed to relieve the pain. Then treatment was applied on the assumption that the nerve was suffering from pressure from some enlarged vein, and benefit was at once apparent. An elastic stocking gave the desired relief, with or without first lifting the leg to expel the blood.

65. **Vaccination against Tuberculosis.**—Maragliano here brings down to date his report of his work in this line which has been repeatedly mentioned in The Journal. He says that the technic and method in general is exactly like that of vaccination against small-pox, and that years of experience have demonstrated its harmlessness, while prolonged control of the vaccinated has proven its efficacy. They were vaccinated because their environment exposed them particularly to infection, and none of 465 traced to date has developed tuberculosis. The Maragliano method was discussed at the Tuberculosis Congress at Washington, as reported in The Journal, Oct. 7, 1908, p. 1360.

67-68. **Salvarsan Alone in Syphilis.**—Wechselmann remarks that the last four years have brought us farther on the road to the complete cure of syphilis than four centuries of mercury, and he now discards the latter altogether, pinning his faith to salvarsan alone, as already mentioned editorially, p. 1175. He describes the present condition of some of the first patients to whom he gave salvarsan treatment; everything seems to indicate that they are permanently cured. Blaschko discusses a number of important phases of the syphilis problem and states that we must now devote all our energies to perfecting the diagnosis of syphilis in the very earliest stages so that we can nip it in the bud, and also perfect our clinical, serologic and chemical knowledge so that we can recognize the slightest signs of a syphilitic affection in any organ and, last but not least, keep scrupulously exact case-histories regarding the effect of the various measures applied in treatment. This is a long and tedious task, but it is the only way to be sure.

71. **Splenectomy in Pernicious Anemia.**—Port's patient was a man of 31 whose blood had the typical features of the pernicious type even between the exacerbations. The spleen was removed and although there had been considerable loss of blood, it weighed 432 gm. Improvement followed until now, three months later, the hemoglobin is 77 per cent., the reds number 3,556,000, and the leukocytes 9,500, while there are not many Jolly bodies; at first they were extremely numerous.

73. **Tuberculosis of the Kidneys.**—Karo cites statistics to show that the kidneys become involved in fully 50 or 53 per cent. of the cases of tuberculous foci elsewhere, while tuberculosis is often an important factor in amyloid degeneration of the kidneys. When amyloid degeneration develops in the course of tuberculosis elsewhere, the prognosis is absolutely bad. The same may be said of any involvement of the kidneys with acute or subacute general miliary tuberculosis. Even when all the symptoms have subsided and the patient is apparently completely cured, the kidney trouble may flare up again and prove speedily fatal. It is still a question whether tubercle bacilli can be eliminated through a sound kidney.

### Deutsche medizinische Wochenschrift, Berlin

*March 19, XL, No. 12, pp. 577-624*

75 Dilatation of the Aorta in Heller-Doehle's Aortitis. F. Kraus.
76 Tuberculosis and Gold Cantharidin. G. Spiess and A. Feldt.
77 Vaccination against Diphtheria. (Prophylaxe der Diphtherie nach v. Behring.) J. Bauer.
78 Influence of Weak Electric Current on Rat and Mouse Cancer. Seyderhelm.

79 *Sterilization of the Mouth with Ultraviolet Rays. E. Friedberger and E. Shioji.
80 *[illegible] R. Roosen and N. Blumenthal.
81 *[illegible] and Tuberculosis. (A. R. bei Karzl-[illegible] E. Fränkel. (Epiphaninreaktion bei Krebskranken.) E. Jozsa and M. Tokeoka.
82 Tubercle Bacilli in the Blood of no Diagnostic Import. Baetge.
83 Diphtheria Bacilli May Penetrate All the Organs. Liedtke and Völckel.
84 History of Antitoxin Treatment of Diphtheria. (Wandlungen der spezifischen Bekämpfung der Diphtherie.) W. G. Ruppel. Commenced in No. 11.
85 Nasal Diphtheria in Infants. (Klinische Bewertung der Bakterientypen bei Nasendiphtherie.) W. Buttermilch.
86 Saponoid in the Blood Serum. (Unbekannte Substanz im Blutserum des Menschen und einiger Tiere.) W. Frieboes.

79. **Disinfection of the Mouth with Ultraviolet Rays.**—Friedberger and Shioji report research which confirms the strong bactericidal action of the ultraviolet rays. With them it is possible to sterilize vaccine so that no chemical disinfectant is required. When applied inside the mouth of a rabbit previously infected with various germs, the germs were rapidly killed. It is possible, they suggest, that this method might prove a means to eradicate diphtheria bacilli from the throats of chronic carriers, also to sterilize the throat, teeth or vagina.

80. **The Meiostagmin Reaction.**—This test was applied in a total of 168 cases and it elicited a positive response in 98 per cent. of the cancer cases, but a number of other affections gave a positive response also. This shows that while a negative response is strong evidence against carcinoma (not sarcoma), positive findings do not testify conclusively to cancer.

81. **Serodiagnosis of Cancer and Tuberculosis.**—Fränkel writes from the cancer research institute at Heidelberg to state that neither with cancer nor with tuberculosis were reliable results obtained with Abderhalden's method of serodiagnosis. Jozsa and Tokeoka state that in their application of the epiphanin test to seventy-two different serums, positive findings were obtained in 81.5 per cent. of the cancer cases while it was overwhelmingly negative in the non-malignant cases. The principle of the test was described in THE JOURNAL, 1913, lxi, 788.

### Deutsche Zeitschrift für Chirurgie, Leipsic

*February, CXXVII, Nos. 1-2, pp. 1-208*

87 *Disease of the Lymphatic Vessels. (Die Lymphstauung und ihre Produkte.) H. Gross.
88 *Treatment of Granulating Wounds with Hot Air. (Die Behandlung granulierender Wundflächen mit getrockneter Luft: Siccor-Apparat von R. Kutner.) H. Poth.
89 Complete Restoration of Clavicle with Bone Flap. (Vollständige Wiederherstellung des Schlüsselbeins mit Hilfe der freien Knochenplastik.) S. F. Tschisch.

87. **Disease of the Lymphatic Vessels.**—Gross' article on lymph stasis and its products fills 168 pages. He regards lymph cysts and chyle cysts as well as lymphectasia of any kind as the local product of a general overloading of the blood-system. His compilation of 120 cases shows such a coincidence of various cardiovascular disturbances that it is impossible to accept the association as casual. When the circulation is impeded from any cause, especially when the blood-vessels are abnormally narrow, the lymphatics are called on to relieve the overfilled venous system, and the lymphatics stretch under the influence of the wave of blood that rushes into them and forces back the lymph.

88. **Hot Air in Treatment of Wounds.**—Kutner noticed that in places with low humidity, wounds heal exceptionally quick and he applied this principle in aseptic treatment of granulating wounds by playing a jet of hot air on them. Poth gives here the details of fifty-two cases in which this method was applied, with what he calls ideal results. The only objection is that the Kutner apparatus for the purpose is expensive. It heats and cleans the air and is applied for three-quarters of an hour once a day.

### Medizinische Klinik, Berlin

*March 22, X, No. 12, pp. 487-528*

90 Roentgen and Radium Therapy in Gynecology. H. Peham.
91 The Causal Agent of Small-Pox. (Die Aetiologie der Variolavaccine und die neueren Forschungen über den Pockenerreger.) L. Unger. Concluded in No. 13.
92 Familial and Inherited Ataxia. Vorkastner. Commenced in No. 10.
93 *Psychoses and Menstrual Disturbances. A. Passow.
94 *Practical Aspect of Spastic Ileus. A. Fromme.
95 Protective Ferments in the Urine. V. Kafka.
96 Diagnosis of Constitutional Anomalies between 20 and 50. (Diagnose der Konstitution.) V. Baar.

93. **Reciprocal Relations Between Psychoses and Menstrual Disturbances.**—Passow traces the history of this subject back to Hippocrates, and then relates a number of clinical points learned in his long years of service in a sanatorium for nervous diseases. He has noticed, for instance, that the patients brought in are almost always entering on a menstrual period. He also reports the case of a previously healthy and happy mother of several young children who passed through a period of grief, with fatigue from a long journey, and developed what seemed to be acute mania for two days. Then menstruation came on and after sleeping fourteen hours she was completely restored, with no memory of her period of excitement and no recurrence of the psychosis during a number of years to date. The emotions which most frequently cause suspension of the menses seem to be the fright at a fire, and when an unmarried woman believes that conception has occurred. Passow has always found amenorrhea in a psychosis a grave omen.

94. **Spastic Ileus.**—Fromme says that only twenty cases are on record in which spastic ileus caused disturbances of such gravity that operative treatment was required. Time should not be wasted on conservative measures unless the symptoms are mild or the patient is known to be subject to severe hysteria. When this is the case, sedatives, morphin, atropin in small doses may be tried. Purgatives are directly contra-indicated but the bowel can be flushed from below. When the abdomen is opened and mechanical stoppage of the bowel can be excluded, we can suture the incision with confidence that the spasm will subside spontaneously under the influence of the operation or with the aid of sedatives. With threatening symptoms, an opening into the bowel above may have to be made. In one such case in which the spastic ileus developed after an operation, eight weeks passed before the bowel relaxed and the fistula above could be dispensed with. Spasm of the bowel is often a factor in invagination. At necropsy of one child who had died with symptoms of ileus, he found that the spasm of the bowel still persisted.

### Münchener medizinische Wochenschrift

*March 17, LXI, No. 11, pp. 577-632*

97 *Extension in Joint Disease. (Gelenkextension.) H. v. Baeyer.
98 Serodiagnosis of Tumors. (Klinische Studien mit dem Dialysierverfahren nach Abderhalden. II.) H. Oeller and R. Stephan.
99 Deformity of Mammalian Eye. (Entstehung angeb. Anomalien und Missbildungen im Säugetierauge.) H. E. Pagenstecher.
100 Action of Copper plus Methylene Blue on Tubercle Bacilli. v. Linden.
101 Cataract Destructive Process a Ferment Action. M. Hoffmann.
102 *Slow Endocarditis Due to Mic. Flavus. H. Kämmerer and R. N. Wegner.
103 Classification of Spirochetes. (Stellung der Spirochäten im System.) Meirowsky.
104 *Operative Restoration of Function to Ankylosed Joints. (Gelenkmobilisierung.) O. Vulpius.
105 *Diagnosis of Peritonitis in Young Children. R. Drachter.
106 Circular Suture of Blood-Vessel. (Klinischer Beitrag zur Bewertung der zirkulären Gefässnaht.) H. Flörcken.
107 Disorders in Children by Imitation and Induction. A. Strauch (Chicago).
108 Modified Technic for Abderhalden's Serodiagnosis. S. P. Swart and A. J. L. Terwen.
109 *Prophylaxis of Diphtheria. Bachauer.
110 Do We Give Drugs Too Often? (Krücken oder Beine? Angewöhnung und Abgewöhnung von Heilmitteln.) E. Bleuler.

97. **Extension in Treatment of Joint Disease.**—Baeyer reviews the causes which cooperate in the benefit from extension, analyzing the mechanism. The extension reduces the pressure of the articulating surfaces on each other; keeps the joint in repose; changes the points of contact; prevents the soft parts from protruding into the joint; prevents or cures contracture; relieves pain and fever, and brings serum into the joint in larger amounts, but the chief benefit from the extension is the hyperemia which it induces in the soft parts, articulating surfaces and bones forming the joint. Hyperemia follows later in the stretched muscles after the extension stops.

102. **Slow Endocarditis.**—A young lawyer had long had aortic insufficiency but it had never caused disturbance until he developed a febrile state with night sweats. The fever was of a remittent type and persisted after the chronically inflamed tonsils had been removed. Treatment on the basis of chronic endocarditis gave little relief and necropsy after intercurrent fatal pneumonia revealed typical suppurating "endocarditis

lenta," but instead of the *Streptococcus viridans* being found as the causal agent, the *Micrococcus flavus* proved to be responsible. The case is illustrated, the comment being that this is the first instance on record in the literature of this common saprophyte displaying pathogenic properties. Nothwithstanding the extremely slow course of the endocarditis, the microbes swarmed in blood and heart.

104. **Operative Mobilization of Stiff Joints.**—Vulpius gives a number of illustrations showing the excellent functional results several years after an operation on ankylosed shoulders, knees or hip-joints. He operates through a bilateral incision, carves the articulating surfaces to the desired shape with delicate files and saws, and interposes large pedunculated flaps of fascia, not only covering the raw surface of the femur, for instance, but underpadding the patella. He gives an illustrated description of one case in which recent reexamination, years after, showed ideal results although the hip-joint had been previously ankylosed for over twenty-five years. He says that *the two cases of severe and painful ankylosis of both hips* which show such excellent results years after, justify operative measures for all chronic joint processes entailing ankylosis.

105. **Diagnosis of Peritonitis in Young Children.**—Drachter states that a young child was brought for an operation for appendicitis and peritonitis; everything seemed to justify this diagnosis except that when he lifted the child's stretched right leg and struck the sole, there was no sudden aggravation of the pain such as almost invariably causes the child to scream or grab his right flank when the peritoneum is really inflamed. He has found this a very instructive aid in differentiating peritonitis. The child in question had incipient pneumonia on the right side.

109. **Prophylaxis of Diphtheria in the School.**—Bachauer describes the arrangements in vogue at Augsburg and states that no new cases developed after they were applied. Children with diphtheria and also all children from the same family are excluded from the school until their throats are found free from diphtheria bacilli on several examinations. When several cases develop after each other in a schoolroom the above measure is applied also to all the children whose throats show signs of inflammation. If cases still develop in the schoolroom, then smears are taken from the throats of all the children, thus trying to detect any bacilli-carriers. In case such are found they are treated as above as if they had diphtheria. In 1913 there were 495 cases of diphtheria among the schoolchildren and the throats were found sterile one or two weeks after diphtheria in about 10 per cent.; after three weeks in 17 per cent.; after six in 17; after seven in 12 and after ten in 2 per cent., while four convalescents were not found sterile until after ten weeks (2.31 per cent.), and one bacilli-carrier after twelve weeks. One great difficulty in prophylaxis is that when children are excluded from school as bacilli-carriers they may play with healthy children. That this can be prevented by enlightening the parents is shown by the fine results obtained in a number of other German cities in which the above measures are enforced. At Augsburg fully 25 per cent. of all persons in the environment of a diphtheria case were found harboring diphtheria bacilli. The parents of the younger children did not object to the measures enforced but considerable diplomacy was required to carry them through in the upper grades. An arrangement was made with the school board by which children who had to be excluded from school for a number of weeks were given special instruction afterward to enable them to catch up with their class. In a very few instances it was found necessary to appeal to the authority of the local board of health.

### Wiener klinische Wochenschrift, Vienna

*February 5, XXVII, No. 6, pp. 117-140*

111 *Elderly Patients. (Das Greisenalter als wichtiger Variationsfaktor klinischer Krankheitsbilder.) H. Schlesinger.
112 The Edema with Anemia. L. Hess and H. Müller.
113 Radium Therapy in Urology. H. Schüler.
114 Technic for Intra-Uterine Treatment. K. J. Bucura.

111. **Old Age as Affecting the Clinical Picture.**—Schlesinger comments on the scant attention that has been paid to the modifications in clinical pictures for which increasing age is responsible, aside from truly senile affections. For example, among 1,800 cadavers over 60 years old, cancer of the gastro-intestinal tract was found almost exclusively in men while less than a fourth of the cancers of the gall-bladder were in men. *Study of this material shows further that old age in itself cannot be the most important factor in cancer*, as after 70 comparatively few primary cancers develop. Persons just entering on old age seem most predisposed; in this material, 9.2 per cent. of the primary gastric cancers developed between 60 and 70 and only 4.1 per cent. after 76. Another point brought out is that the power to induce metastasis seems to decline with increasing age when the cancer is located elsewhere than in the pancreas or gall-bladder or bile ducts. There was metastasis from the gastric cancer in all but 11 per cent. of the patients between 60 and 65. After 70, 18 per cent. and and after 76, 50 per cent. had no metastasis. There was no metastasis in over 66 per cent. of the patients over 60 with bowel cancer. These facts render the prospects of radiotherapy more encouraging for elderly patients.

The clinical picture of infectious processes may be modified by relics from former infections from which recovery seemed complete at the time. They may also have left more or less immunity. This is not the case with streptococci, pneumococci *and influenza and colon bacilli; they seem to confer extra* susceptibility rather than immunity. One pregnant feature of disease in the elderly is the intensity of the general symptoms while the local symptoms are extraordinarily mild or lacking altogether. The inelastic lung tissue, impaired blood-supply, and the way in which one nerve center may lag behind the others all help in obscuring the local findings. At no other period in life are there so many latent forms of disease, but this is simply because we have not learned to recognize the special signs of trouble at this age. The course of diseases is either unusually short or unusually prolonged in the elderly. If the elderly survive the onset of angina pectoris, they may live much longer with it than a younger person. But they take far longer to convalesce from an acute disease, and complications on the part of the cardiovascular system are liable at any time. The gravest dangers for the elderly are anorexia and marasmus. He knows of only one instance of recovery from senile anorexia. He says that treatment is futile and the patients succumb to inanition.

### Zeitschrift für Urologie, Berlin

*March, VIII, No. 3, pp. 161-240 and Supplement*

115 Practical Importance of Urethroscopy. E. Wossidlo.
116 Local Treatment of Gonorrhea in the Male. C. Heinemann.
117 Operative Treatment of Atrophy of the Prostate. H. Datyner.
118 Bladder Calculi. (Blasensteine: Entstehung, Behandlung und Verhütung.) S. P. von Fedoroff, F. Schlagintweit and J. Preindlsberger.
119 Electrotherapy in Urology. H. Wossidlo and R. Oppenheimer.

### Zentralblatt für Chirurgie, Leipsic

*March 21, XLI, No. 12, pp. 497-544*

120 Technic for Correction of Cleft Palate. (Zur Frage des Verschlusses der Kieferspalte bei "einseitig durchgehender Gaumenspalte.") R. Drachter.
121 *The Thymus with Thyroid Disease. (Die Thymusdrüse bei Morbus Basedow und verwandten Krankheiten.) M. Simmonds.
122 Synthetic Epinephrin. (Zur Wirkung der synthetischen Nebennierenpräparate.) A. Schlesinger.
123 *After Prostatectomy. (Eine neue Methode zur Nachbehandlung der Prostatektomie.) J. W. Van Bisselick.

121. **The Thymus in Exophthalmic Goiter.**—Simmonds states that he found the thymus abnormally large in 14 of 18 cases of exophthalmic goiter and in 7 of 16 cases of mere thyroidism. That is to say, in 75 per cent., of all cases of exophthalmic goiter an abnormal thymus has to be reckoned with. He advises excising a scrap of the thymus when operating on the thyroid as microscopic examination may show whether the structure corresponds to that of a younger age or whether there is marked proliferation of the medullary substance. His article is based on necropsy findings in 10 exophthalmic goiter cases and 2 of thyroidism, and on the findings at operation in 8 genuine Basedow cases and 14 of thyroidism.

123. **Technic after Prostatectomy.**—Van Bisselick calls attention to the prompt recovery after prostatectomy when a retention catheter is worn continuously for a time and the

incision in the bladder is sutured except for a small space left open to bring out one strip of gauze. The bladder is rinsed every two hours and the catheter is changed daily. By this technic six of the nine patients were urinating spontaneously in less than two weeks; one man of 76 was up and about the sixth day. One of the others had cancer; in the two others the catgut was absorbed too soon but no serious complications developed, although one of these patients had cystitis with chills on entering the hospital. He was operated on at two sittings.

### Zentralblatt für Gynäkologie, Leipsic

*March 21, XXXVIII, No. 12, pp. 425-464*

124 Theoretical Study of Serodiagnosis of Pregnancy. (Zur Theorie der Abderhalden'schen Schwangerschaftsreaktion.) J. Schottlaender. (Zur Abderhalden'schen Schwangerschaftsreaktion.) F. Primsar.
125 Fascia Lata Graft to Correct Genital Prolapse. B. Nadory.

### Gazzetta degli Ospedali e delle Cliniche, Milan

*XXV, Nos. 34-35, pp. 353-376*

126 *Urochromogen in the Urine with Pulmonary Tuberculosis. (Sul valore semeiologico e prognostico della reazione del permanganato nelle urine.) G. Pignacca.
127 Familial Enuresis. L. Gatti.

**126. Urochromogen in Urine Pathognomonic of Pulmonary Tuberculosis.**—This is the conclusion reached by Pignacca after repeated examination of forty-six patients and a number of healthy controls. He applied the Moritz-Weiss permanganate test and found it constantly negative in the healthy controls and in patients with non-tuberculous affections while it was constantly positive in nine patients with pulmonary tuberculosis with a single exception, and constantly negative with tuberculous affections elsewhere than in the lungs, likewise with a single exception.

### Policlinico, Rome

*XXI, Medical Section No. 3, pp. 97-144*

128 Effects on the Blood of Removal of Ovaries. (Effetti della castrazione ovarica sul sangue.) G Antonelli.
129 The Leukocytes in Progressive Pernicious Anemia. P. Sisto. Commenced in No. 1.
130 Differential Importance of Topographic Percussion of the Lung Apex. (Valore semiologico dei campi di risonanza del Krönig.) A. Fagiuoli.
131 Roentgenoscopic Diagnosis of Hour-Glass Stomach. (Stomaco biloculare.) L. Coleschi.

### Riforma Medica, Naples

*March 14, XXX, No. 11, pp. 281-307*

132 The General Practitioner. (Il medico pratico.) A. Murri.
133 Diabetic Eclampsia. T. Silvestri.
134 Forward Dislocation of the Head of the Radius. (Lussazioni anteriori della testa del radio.) G. Anzilotti.
135 Deviation of Complement by Thyroid Extract in Serum of Febrile Patients. A. Rossi.

### Rivista Ospedaliera, Rome

*February 28, IV, No. 4, pp. 173-220*

136 Serodiagnosis of Syphilis. (Il valore diagnostico delle precipitine nella sifilide.) C. Russo.
137 Behavior of the Leukocytes in the Blood after Antityphoid Inoculation. (Sul comportamento dei leucociti nel sangue dei tifose vaccinati.) U. Daretti.

### Brazil-Medico, Rio de Janeiro

*March, XXVIII, No. 9, pp. 81-90*

138 The Wassermann Reaction in Syphilis. G. da Silveira.

### Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

*II, Nos. 21-25, pp. 1767-2186*

139 Cardiac Insufficiency. (Onvoldoende hartwerking en hartzwakte.) K. F. Wenckebach.
140 Herpes Zoster. (De path.-anat. bevindingen bij een geval van herpes zoster.) P. Nieuwenhuijse.
141 *Plague in the Netherlands. (Pestepidemieen te Gorinchem.) M. A. van Andel.
142 Medical Aspects of Bicycling. (Het wielrijden.) P. Plantenga.
143 Operative Treatment of Retrodisplacement of the Uterus. (De operatie van Alexander-Adam.) M. A. Mendes de Leon.
144 Medical Examination before License to Marry is Granted. (Geneeskundig onderzoek voor het huwelijk.) A. C. H. V. La Brand and A. L Hagedoorn.
145 Mechanism of Tuberculin Reactions. (Analyse der tuberkulinewerking. J. Hekman.
146 *Green Effusion in the Pleura. F. A. Steensma and E. H. B. van Lier.
147 Treatment of Fracture of the Neck of the Femur. (Over de loopende behandeling van de breuk van den dijbeenhals.) A. Lorenz (Vienna).
148 Diphtheria and the School. C. Bakker.

**141. Plague.**—This is a historical article about the plague from 1348 to 1667. It contains many interesting data regarding the prevention, quarantining, care of the sick, disposal of the dead, etc., in those days.

**146. Green Effusion.**—This case of pleuritis which furnished the green exudate was not complicated with jaundice. According to some writers the green color cannot be due to bile-pigment if icterus is not present. But in this case the effusion contained a considerable quantity of bilirubin; the urine did not contain this coloring matter; there was no communication between the liver and the pleural cavity. Spectroscopic and microscopic analysis of the blood and clinical examination failed to reveal any explanation for the presence of the pigment in the effusion.

### Russky Vrach, St. Petersburg

*February 1, XIII, No. 5, pp. 145-180*

149 Bacteriology of Typhus. S. V. Levashoff. Commenced in 4.
150 *Stenosis and Obstruction of Superior Vena Cava. K. A. Wagner.
151 Serodiagnosis of Carcinoma. S. M. Poggenpol.
152 New Method of Determining the Real Dimensions of the Heart with Roentgen-Rays. A. N. Aleiekoff.

*February 8, No. 6, pp. 181-216*

153 Alleged New Method for Blood-Cell Count. N. K. Goriaeff.
154 Anastomosis between the Saphenous and Femoral Veins for Varicose Veins of the Legs. E. Hesse and W. Schaak.

*February 15, No. 7, pp. 217-252*

155 *Acute Thyroiditis as the Cause of Symptoms of Exophthalmic Goiter. D. D. Pletneff.
156 Modern Research in the Field of Auto-Intoxication. P. I. Philosophoff.
157 *Suppurative Peritonitis. I. I. Grekoff. Commenced in No. 1.
158 Connection between the Subarachnoid Space of the Brain and Spinal Cord and the Lymphatics in Man. M. Y. Radetzky.
159 Glycogen in the Tissues of a Chicken Embryo in Its Earliest Stages of Development. E. A. Kartashewsky and N. B. Veselkin. Commenced in No. 6.

**150. Obstruction of Vena Cava.**—Wagner reports four cases of stenosis of the superior vena cava caused by malignant tumors or tuberculosis of the mediastinum. The most constant and characteristic sign is the collateral circulation evident in the skin in the form of single dilated veins on the chest, abdomen, face or neck, most pronounced between the ensiform process and the umbilicus. Sometimes the dilated vessels form an actual network of interlacing veins. When pressed by the finger the veins became distended above the pressure point, thus indicating that the current flows from above downward. There are also numerous subjective clinical signs indicating involvement of the lungs and heart; dyspnea, cyanosis and edema of the face, dulness on percussion over the anterior surface of the chest, bloody pleural effusion, small pulse, etc. In recent cases of occlusion of the superior vena cava there may be only edema of the skin of the chest which subsides as collateral circulation develops. In older cases the latter is always present, and its absence speaks against the diagnosis of obstruction of the vena cava.

**155. Acute Thyroiditis as the Cause of Symptoms of Exophthalmic Goiter.**—Pletneff describes nine cases of infectious diseases, two of typhoid, two of sore throat and five of influenza in which the thyroid gland became involved. Clinically there were signs and symptoms of Basedow's disease, such as tachycardia, tremor, enlarged thyroid, Graefe, Moebius and Stelwag signs, etc. The toxic conditions involve apparently not only the thyroid, but other glands with an internal secretion, producing a so-called pluriglandular affection.

**157. Suppurative Peritonitis.**—Grekoff has had 217 cases of purulent peritonitis caused by appendicitis, cholecystitis, salpingitis, post-partum complications, typhoid, rupture of the intestines, stomach or bladder, perforation of ulcer of the stomach and duodenum, wounds of the intestines and stomach, etc. Of the 217 patients 205 were operated on, with 49.75 per cent. mortality. Grekoff prefers the open dry treatment of the infected peritoneal cavity by means of large incisions and large gauze tampons which, properly applied and changed, give as good results as any other method (lavage of the abdominal cavity, complete or partial closure of wound, etc.); all depends on the case. Whatever the method, the operation should be done early, expectant treatment being allowed only in those cases in which the infection shows a tendency to become circumscribed (gall-bladder trouble and gynecologic cases). In such cases a treatment is used similar to Ochsner's. Otherwise he considers the expectant treatment as dangerous. All his patients with diffuse purulent peritonitis who refused operation died. Lavage of the peritoneal cavity was done nineteen times, with four recoveries. This method is to be used, he declares, only in late cases when the contents of the stomach and intestines get into the abdominal cavity. Complete closure of the laparotomy incision is indicated in early cases (in twelve cases only one patient died).

When there are no changes in the intestines, no hemorrhage, etc., drainage by means of tubes is condemned by Grekoff as intestinal obstruction may be the result. After operative treatment he advocates Fowler's position, repeated lavage of the stomach when the latter becomes distended, saline rectal injections, sometimes in drop form. In case the intestines become enormously distended, repeated puncture with a needle or pin proved to be a safe and reliable measure, while physostigmin, atropin and other drugs did not give very satisfactory results. Symptoms of adhesive peritonitis subsided under application of vacuum cups (Bier). Grekoff comes to the conclusion that in the fully developed cases of purulent peritonitis the prognosis is very bad. Prophylactic treatment is the best, i.e., early diagnosis and treatment of those diseases that may lead to peritonitis and an early operation of the latter when it has developed.

### Hospitalstidende, Copenhagen

*March 18, LVII, No. 11, pp. 321-352*

160 *Sodium Glycocholate in Serodiagnosis of Syphilis from Blood in Umbilical Cord, etc. (Undersøgelser over Opvarmningens indflydelse paa Fældningsreaktionen med glykocholsurt Natron.) C. With.
161 *Differential Diagnosis of Tuberculosis and Syphilis of Mucous Membrane of Upper Respiratory Tract. O. Strandberg.

160. **Serodiagnosis of Syphilis.**—With reports research with various modifications of the sodium glycocholate precipitation test, especially with and without warming the serum, and with parallel tests with the Herman-Perutz and other technics. His material embraces 563 cases of syphilis and 44 controls; the blood from the umbilical cord was examined in 194 cases.

161. **Differential Diagnosis of Tuberculosis and Syphilis on Mucous Membrane.**—Strandberg calls attention among other differentiating points to the fact that lupus generally develops with an infiltrated margin, large granulations and mucopurulent secretion; in syphilis the granulations are fine and the secretion is thin and more purely serous. Another point is that tuberculosis or lupus extremely rarely invades the mucous membrane of the upper air passages as the primary lesion, while this is a frequent location for isolated syphilitic lesions in the third stage of the disease. The Wassermann test may give a negative response even when this is the case, especially not long after a course of treatment. Much's stain and inoculation of animals are not decisive on account of the almost inevitable mixed infection. A local reaction on the mucosa after injection of tuberculin is enlightening. Solger regards as pathognomonic for syphilis the finding of vessels obstructed with granulation tissue as shown by staining the elastin, although this does not always occur. A lesion of any kind on the palate is almost invariably of syphilitic origin, regardless of what the history of the case may apparently demonstrate otherwise. The syphilis of course may be associated with tuberculosis in any affection of the mucosa of the upper respiratory tract, but vigorous treatment may eliminate the syphilitic factor at least.

### Hygiea, Stockholm

*March 1, LXXVI, No. 5, pp. 257-318*

162 *Adhesive Pericarditis. (Om synechia pericardii.) I. Holmgren.

162. **Adhesive Pericarditis.**—Holmgren comments on the rarity of pericarditic synechia in tuberculosis. In the course of years and hundreds of necropsies at a sanatorium for lung diseases, adhesive pericarditis for which tuberculosis was responsible was encountered only a very few times. He has diagnosed over twenty cases of adhesive pericarditis in his service since 1906; corroborated by necropsy in nine. In other cases simple adhesion was discovered at necropsy when there had been no symptoms during life to call attention to it. Some typical cases are described. Necropsy in one young man showed that the adhesive pericarditis had involved the diaphragm and spread to the part of the liver just below; adhesions had welded the whole into a solid mass at this point. A tugging retraction of the chest wall over the apex region during systole is strong testimony for synechia if other causes can be excluded, especially traction on the heart from shriveling processes in the lungs. Still stronger evidence for synechia is afforded by retraction of the whole of the heart. This is often followed by a diastolic bulging of the wall over the heart. The veins in the neck may collapse suddenly during diastole; Brauer has also called attention to a third heart sound. Holmgren regards as significant a friction sound localized at the base of the heart, although a similar sound is often encountered in pulmonary tuberculosis or pleurisy and he reports a case in which it proved to be a sign of cancer metastasis. If other causes for pulsus paradoxus can be excluded it is strong evidence of pericardial synechia. The fixation of the diaphragm leads to disturbances in respiration out of all proportion to the symptoms of trouble in the heart. Another sign suggesting adhesions is the absence of the normal shifting of the position of the heart as the patient stands and reclines. If there are no symptoms except those of the synechia, the prognosis is not inevitably bad, but if there is complicating infection, a child seldom reaches the age of puberty; with an adult the outcome frequently depends on whether he can spare himself or not. Operative separation of the heart from the chest wall—cardiolysis—has been applied in only a few cases, but the results have been encouraging. The resection of ribs renders the chest wall more yielding. Heart tonics are needed as with other causes of insufficiency of the heart. Alcohol and tobacco are strictly contra-indicated with severe trouble.

Finsen suffered from chronic adhesive pericarditis and he learned by experience that he felt better on a salt-poor diet, his ascites growing less and returning again whenever he resumed salt.

### Nordiskt mediziniskt Arkiv, Stockholm

*LVI, Internal Medicine No. 2. Last indexed Jan. 31, p. 422*

163 Production of Uric Acid. (Bildung der Harnsäure beim Menschen.) J. P. Chrom.
164 *Pathogenesis of Goiter. (Die Strumafrage.) C. Schiøtz.
165 Absorption of Sodium Salicylate Depends on Its Concentration. (Bedeutung der Konzentration für die Resorption von Salicylas natricus bei verschiedenen Applikationsmethoden.) E. Levin.
166 Diaphragmatic Hernia. (Fall von Hernia diaphragmatica spuria congenita dextra.) P. Wetterdal.

164. **Pathogenesis of Goiter.**—In Schiøtz's district goiter is wide-spread and endemic, but very mild. Analysis of an extensive material has convinced him that the goiter is the anatomic expression of an increased functional response to greater demands made on the thyroid from some cause. The gland responds by enlarging its secreting surface. There must be some endemic harmful influence against which the thyroid seeks to rally all its forces. When they prove inadequate, cretinism or myxedema result. He says that animal food and protozoan affections make unusually great demands on the thyroid. The less vigorous the thyroid, the sooner it yields and enlarges, so that every goiter must be regarded as a sign of thyrasthenia. The thyroid in women has demands made on it in the course of the functioning of the ovaries and pregnancy, which cooperate to render it less resistant. This explains the larger proportion of goiters among women. The thyroid, adrenals and hypophysis are in one side of the balance; the genital glands, pancreas and parathyroid bodies in the other side. When one gland in each of these two groups becomes functionally deficient, the other glands in that group suffer with it. An unstable nervous system is liable to add its influence. This is the explanation for exophthalmic goiter, he thinks. It is a neurosis, and it is more correctly designated as neurotic thyreosis.

### Ugeskrift for Læger, Copenhagen

*March 19, LXXVI, No. 12, pp. 493-538*

167 Curds in Infants' Stools from Unmodified Milk. (Om raamaelkskoagler i flaskebørns afføring.) V. Poulsen.
168 Roentgen-Ray Treatment of Deep-Lying Cancer; Five Cases. S. and J. Nordentoft.

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# ANTITYPHOID VACCINATION IN THE ARMY DURING 1913

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The favorable results obtained with antityphoid vaccine during former years[1] led us to expect much from the measure, but the remarkable records of the past year, 1913, have far surpassed our expectations, and are of so striking a character that their publication seems desirable.

As will be shown in the accompanying charts and tables, in the entire army of over ninety thousand men, only three cases of typhoid fever, with no fatalities, have occurred during the year 1913.

The year 1911 marked the beginning of compulsory vaccination in the Army for all persons under 45 years of age; but the full effect of such vaccination was not immediately seen, since five times as many cases occurred that year as during 1913, and it is very probable that the rate has now reached an irreducible minimum.

TABLE 1.—TYPHOID FEVER, ENLISTED AMERICAN TROOPS SERVING IN U. S. PROPER *

| Year | Mean Strength | Absolute Cases | Number Deaths | To Each 1,000 Soldiers of the Command the Ratios Are: For Cases | For Deaths |
|---|---|---|---|---|---|
| 1907........ | 35,132 | 124 | 7 | 3.53 | .19 |
| 1908........ | 46,316 | 136 | 11 | 2.94 | .23 |
| 1909........ | 57,124 | 173 | 16 | 3.03 | .28 |
| 1910.... ... | 55,680 | 129 | 9 | 2.32 | .16 |
| 1911........ | 55,240 | 44 | 6 | 0.80 | .11 |
| 1912........ | 58,119 | 15 | 2 | 0.26 | .03 |
| 1913... ... | 59,608 | 2 | 0 | .03 | .00 |

* The vaccination was voluntary in 1909, 1910 and part of 1911, but compulsory in part of 1911 and in 1912 and 1913.

Table 1 shows that the number of cases in the United States proper has fallen from 3.53 per thousand men to 0.03 in the six years; the death-rate has fallen from 0.28 in 1909 to zero in 1913. In both instances the greatest improvement has been during the past three years, since the vaccination was made compulsory.

Table 2 includes officers and enlisted men, and shows the number of cases and deaths each year since the typhoid prophylactic was first used. It also shows the number of cases and deaths each year occurring among the vaccinated serving within the continental limits of the United States, and for the past two years, those infected with typhoid fever before enlistment and who developed the fever before vaccination could be carried out. No doubt some men have enlisted each year who were at the time in the incubation stage of the disease; but accurate information is available for the past two years only.

TABLE 2.—NUMBER AND PROPORTION OF TYPHOID CASES CONTRACTED BEFORE ENLISTMENT AND AMONG THE PROTECTED (UNITED STATES PROPER ONLY) *OFFICERS AND ENLISTED MEN*

| Year | Total Cases | Total Deaths | Infected Prior to Enlistment No. | Among the Vaccinated Cases No. | Deaths |
|---|---|---|---|---|---|
| 1909........ | 173 | 16 | ? | 1 | 0 |
| 1910.. ..... | 129 | 9 | ? | 4 | 0 |
| 1911. . .... | 44 | 6 | ? | 7 | 0 |
| 1912.. . ... | 18 | 3 | 5 | 6 | 0 |
| 1913.. ..... | 2 | 0 | 2 | 0 | 0 |

The conditions of service, except perhaps along the Mexican border, are much more favorable in the United States proper than in our over-sea dependencies for practically all diseases; yet during the past year only one case of typhoid fever occurred outside of the United States, and that in China, among the 31,038 men serving abroad.

The results for the entire army at home and abroad, given in Table 3, demonstrate the efficiency of the protection under all conditions of life.

TABLE 3.—TYPHOID FEVER, 1907 TO 1913, FOR THE WHOLE ARMY, OFFICERS AND ENLISTED MEN, AMERICAN AND NATIVE TROOPS

| Year | | Mean Strength | Cases No. | Cases Ratio per 1,000 of Mean Strength | Deaths No. | Deaths Ratio per 1,000 of Mean Strength | Percentage of Total Cases | Occurring Among Those Who Were Vaccinated Cases | Occurring Among Those Who Were Vaccinated Deaths |
|---|---|---|---|---|---|---|---|---|---|
| 1907 | .... | 62,523 | 237 | 3.79 | 19 | .30 | 8.0 | .. | .. |
| 1908 | .... | 74,692 | 239 | 3.20 | 24 | .31 | 10.0 | .. | .. |
| 1909 | .... | 84,077 | 282 | 3.35 | 22 | .26 | 7.8 | 1 | 0 |
| 1910 | .... | 81,434 | 198 | 2.43 | 14 | .17 | 7.1 | 7 | 0 |
| 1911 | .... | 82,802 | 70 | .85 | 8 | .10 | 11.4 | 11 | 1 |
| 1912 | .... | 88,478 | 27 | .31 | 4 | .044 | 14.8 | 8 | 0 |
| 1913 | .... | 90,646 | 3 | .03 | 0 | .0 | 0. | 1 | 0 |

The statistics for enlisted men in the United States proper can be presented much more effectively in the charts.

Chart 1 shows the admission-rates per thousand (that is, the number of cases) for each year from 1901 to date.

The best record obtained by sanitary measures alone is noticed in the year 1908; vaccination, beginning in 1909, has steadily diminished the number of cases, until in 1913 the rate was reduced to five cases per hundred thousand men. What this signifies may be appreciated when one realizes that the civil *death-rate* (not case-rate), in the registration area of the United States, was 16.5 per hundred thousand of population

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ibid., Feb. 1, 1913, p. 344; Progress in Antityphoid Vaccination During 1912, ibid., Aug. 30, 1913, p. 666.

for the year 1912, the last for which the statistics have been published by the Bureau of the Census.

In Chart 2, giving the death-rates for typhoid fever, we see that the best record previous to the introduction of vaccination was 0.19 per thousand, made in 1907; this has now been far surpassed by the truly remarkable record of no deaths whatever from this disease in 1913.

Chart 3 presents a quantitative measure of typhoid fever, in what is called the constantly non-effective rate; this is a statement for each day during the year of the average number of men per thousand incapacitated for full duty by typhoid fever. This ratio is generally acknowledged to be the truest statistical measure of the loss of efficiency from any given cause. The lowest rate obtained with sanitary measures alone was, 0.5 in 1908; this has been rapidly reduced to 0.003 in 1913. In other words, there was in 1913 only one one hundred and sixty-seventh of the loss of time from duty because of typhoid fever which occurred during the record year 1908, before the introduction of vaccination. These three charts are absolute proof of the efficacy of the typhoid prophylactic.

Have any harmful effects been produced by the typhoid prophylactic? This question may be definitely and decisively answered by the plain statement that no harmful effects have been produced. In the Surgeon-General's annual report are records not only of typhoid fever, but of all other diseases affecting soldiers' health. Since the annual report itself may be consulted by those interested in the subject, in almost any medical library, reference will be made hereto to only two points: first, the diseases which were more prevalent during 1912 than during the decade ending in 1911, and second, the effect of vaccination on the rates for tuberculosis, if there has been any.

In answer to the first question we find that the report of the Surgeon-General[2] states that only eight statistical groups of diseases show an increase in the case-rates per thousand; these are eruptive fevers, other than measles, small-pox and typhoid (1.9 to 3.65); diphtheria (0.49 to 1.01); mumps (11 to 16.99); cancer and other malignant growths (0.21 to 0.22); diseases of the brain and spinal cord (2.90 to 4.09); pleurisy (3.03 to 3.22); tonsillitis and other diseases of the pharynx (64.78 to 65.33), and appendicitis (4.54 to 6.59). There is no reason for believing that the antityphoid vaccination is in any way responsible for these changes.

In answer to the second question we find that the case-rate for tuberculosis of all kinds shows a decrease from 4.51 per thousand for the decennial period ending 1911 to 3.49 for the year 1912, a decrease of 22 per cent. On page 70 of the same report is given a tabular statement of all forms of tuberculosis occurring in enlisted men for each year from 1908 to 1912. This table shows, also, not only that tuberculosis has not increased since the introduction of typhoid vaccination, but that it has actually decreased, a result due, no doubt, to improved sanitation and to the care used in the physical examination of recruits.

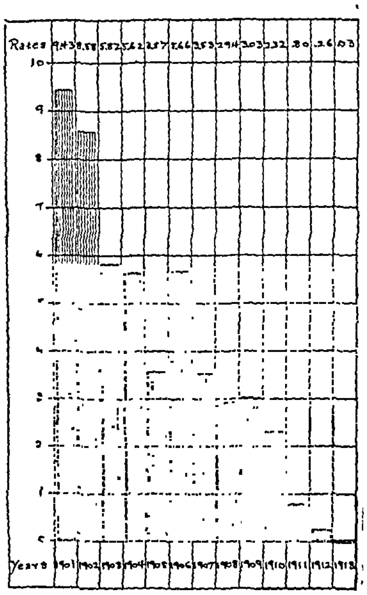

Chart 1.—Admission-rates for typhoid fever, United States (enlisted men).

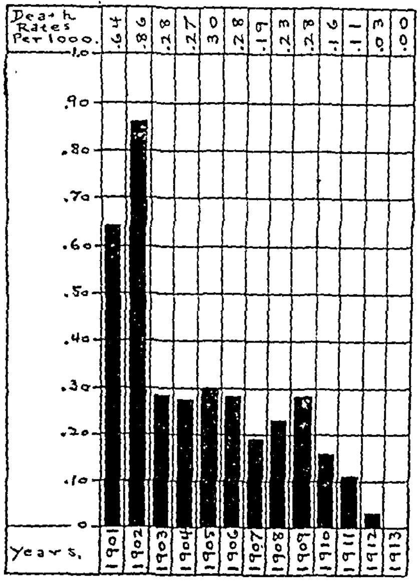

Chart 2.—Death-rates for typhoid fever, United States (enlisted men).

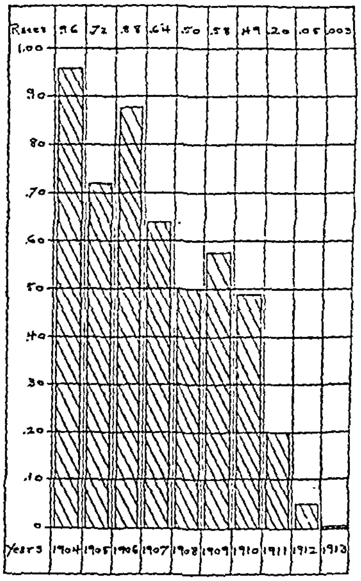

Chart 3.—Non-effective rates for typhoid fever, United States (enlisted men).

TABLE 4.—TUBERCULOSIS, ALL KINDS, ENLISTED MEN ONLY; CASE-RATE PER THOUSAND

| Year | United States | Philippine Islands | Alaska | Hawaii | Transports | Total |
|---|---|---|---|---|---|---|
| 1908.... | 3.99 | 6.10 | 2.96 | 3.92 | 3.46 | 4.39 |
| 1909.... | 4.53 | 5.06 | 3.76 | 2.96 | 3.00 | 4.53 |
| *1910....* | *3.34* | *5.46* | *1.85* | *4.10* | *0.80* | *3.65* |
| 1911.... | 3.64 | 3.77 | 2.68 | 1.99 | 1.76 | 3.55 |
| 1912.... | 3.25 | 5.02 | 4.18 | 2.07 | 2.74 | 3.49 |

The rate per thousand has decreased from 4.39 in 1908 to 3.49 in 1912, a diminution of 20 per cent. during the past five years.

From the accompanying tables and charts the conclusion is inevitable that the prophylactic vaccine as used in the Army has given almost absolute protection against typhoid fever without producing untoward effects of any character, showing definitely that the vaccination is both efficient and harmless.

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[2] Ann. Report, Surg.-Gen., War Dept., Washington, 1913. Table 68, p. 236.

In the annals of preventive medicine there is only one other campaign with which to compare this, and that is the practical extermination of small-pox by vaccination. In a previous article[3] it has been pointed out that in the suppression of infectious diseases, sanitarians encounter two types of infection which differ from one another in the following way:

First, yellow fever, malaria, Malta fever, cestode infections and to a great extent plague, etc., require an intermediate host for the completion of the life-cycle of the parasite, or its conveyance from the infected to new victims.

The second group is composed of diseases of mankind only, the infection passing directly or indirectly from one human being to another, no animal or insect host intervening; examples of this class of diseases are typhoid fever, small-pox, pulmonary tuberculosis, measles, scarlet fever and diphtheria.

In the first group the chain of infection has many links, the breaking of any one of which stops the spread of the disease; in the second, the chain consists of two links only, both human beings, and the inherent difficulties of breaking this short chain of infection are much greater than in the first group, in which the chances are many times as many. For this reason the results for typhoid fever given here should be compared only with the results obtained against other diseases of the same class.

# DRAINAGE VERSUS IMMEDIATE SUTURE OF THE COMMON DUCT

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Drainage of the common duct presents three dangers: much bile is lost, cicatricial contraction occasionally occurs, and should the drain-tube be occluded, or even if it be not occluded, bile may escape into and infect the peritoneal cavity beyond the field of operation.

Owing to an interesting physiologic fact, the loss of bile may become a serious danger—a danger which is usually overlooked—as normally the bile passes through the intestinal tract, and the bile-salts are reabsorbed, return to the liver, again become a constituent of fluid bile, and thus continue their circuit. The continuous loss of bile by drainage in a good-risk patient may cause no apparent damage, but in elderly subjects and in poor risks from any cause, the steady loss of bile-salts and of fluid may prove fatal. In gall-bladder drainage the bile can be collected and, as Yates has suggested, may be returned to the bowel; but in drainage of the common or hepatic duct much bile is sure to be lost beyond recovery. Occasionally also the bile may leak into and infect the abdominal cavity beyond the field of operation—a circumstance that may prove fatal despite the greatest experience and care.

A third danger is also important: the presence of a drain-tube in a bile-duct may of itself cause a partial or a complete stricture of the duct. I venture to assert that if a thousand normal common ducts were considerably traumatized and then drained by close-fitting drainage-tubes snugly sewed in and left for a considerable time, there would result a certain number of partial or complete strictures, just as strictures in the cystic duct are produced by the lodging of a stone, and just as any other duct may be occluded by the effect of the presence of a foreign body.

These three dangers account in large measure for the difference between the mortality rates after operations for stone in the common duct and after operations for stone in the gall-bladder. The records of operations on the gall-bladder and ducts performed by my associates, Dr. Bunts and Dr. Lower, and by myself, and the records of the surgical service of the Lakeside Hospital, demonstrate the truth of the foregoing statements.

It is obvious therefore that if drainage after common-duct operations could be safely dispensed with, the mortality and the morbidity would by so much be further controlled. Why not close the common duct immediately? In the cases in which there is no jaundice, there is free drainage into the intestine through a natural down-hill drainage-tube. Is any other surgical field provided with such an ideal drainage-tube as the common duct? And yet we add to this ideal down-hill natural drainage a foreign tube which drains straight up-hill, leaks around its base, loses bile, and infects the peritoneum; while, in addition, in almost every case, bile still gets by the drainage-tube and passes into the intestine, as is evidenced by its presence in the movements. Why then is the common duct drained as a matter of routine? Undoubtedly because *the duct is handled in a needlessly rough manner when the stone is extracted.*

That immediate closure will probably result favorably is indicated by the fact that the operation is rarely performed at the time of complete occlusion of the duct. If there be complete occlusion, then the extraction of the stone may leave an occluded common duct; but even in that case, if the gall-bladder can be utilized for drainage, the best procedure is to close the common duct at once, and let the gall-bladder be used as a drain until the lumen of the common duct is again opened. Surely restoration of the patency of the duct will occur more rapidly without the presence of a foreign body than with one. In the great majority of cases, however, the common duct is open—at least intermittently—before the operation; in many cases there is no obstruction—no jaundice. Under these conditions would any one think of drainage if the common duct were in a superficial position, easily accessible? The deep position of the common duct, hidden under adhesions as it is frequently, handicaps the operator so that his work is done without the definiteness and innocuousness of sharp dissection, but by tearing; and when the duct is opened its interior too is needlessly traumatized. Would any one consider using a similarly rough technic in operating on any superficial organs or structures?

To overcome the needless local injury, and to reduce the necessity for drainage to a minimum, I have evolved a sharp dissection technic, the possibilities of which are well illustrated by the following case:

A patient, aged 71, years before had had an abscess in the gall-bladder region, the result of a perforation of the gall-bladder, which was opened and drained. Gall-stone symptoms continued and another operation was performed later, but on account of the dense adhesions of the viscera to the abdominal wall, a satisfactory exposure could not be made, especially as the patient was already in a serious condition. The gall-bladder was drained in the hope that relief would

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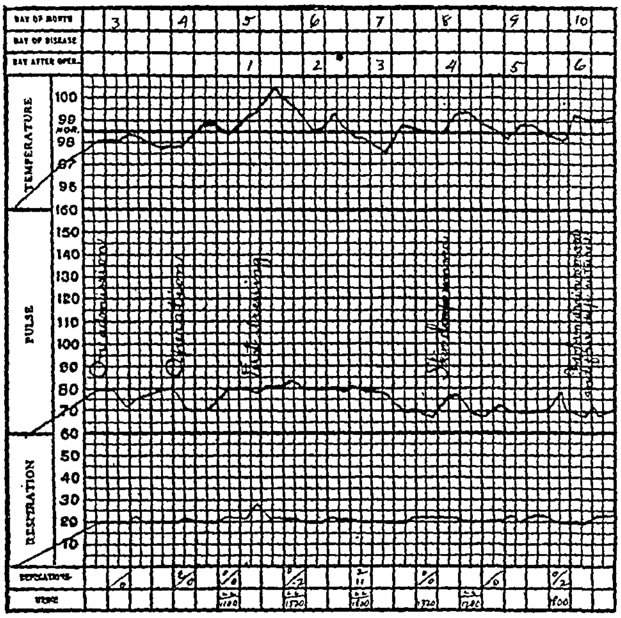
3. Russell, F. F.: Prevention and Treatment of Typhoid Fever with Antityphoid Vaccine, Boston Med. and Surg. Jour., Jan. 5, 1911.

follow; but intermittent pain, chills and jaundice continued for a year, at which time I performed the following operation:

Under nitrous-oxid-oxygen anesthesia, I made a wide exposure of the biliary field by a modified Wilms incision. This gave ample room for making a sharp-knife division of the firm adhesions between the viscera, as a result of which I gained a clear exposure of the dilated, stone-impacted common duct. Under the direct guidance of the eye and with a *sharp knife* a rather long longitudinal incision was made over the stones in the enlarged pathologic common duct. The incision exposed the stones so completely that when they were gently turned out not even a drop of blood came from the mucous membrane. This ample incision in the duct gave an opportunity for not only a complete, but also an *absolutely innocuous* exploration of the remainder of the duct. Six large stones were removed, some of which were embedded firmly. At the end of these procedures we had before us a common duct whose only injury was the sharp longitudinal division of its wall. What possible valid reason existed for draining this large patent duct whose interior was uninjured by the operation? Surely the drainage was no less free without than with the stones. The duct was sutured with as much care and accuracy as is used in suturing the intestines, a curved round needle and a double row of fine chromic gut sutures being employed. A piece of iodoform gauze was sewed with plain catgut to an adhesion below and external to the suture-line in the duct, but coming nowhere into actual contact with the suture-line. At the close of the operation the patient's pulse was the same as it had been in bed the day before. The entire wound healed by first intention, bile passing from the first through the ampulla. The accompanying chart shows the striking clinical result.



Clinical record of operation for common-duct stone performed under anoci-association, nitrous-oxid-oxygen.

To accomplish the bloodless innocuous dissection which is the goal of the anoci technic, all adhesions are carefully divided with a sharp knife, the dissection being rigorously confined to the bloodless hair-line between the peritoneum and the adhesion. No blood-vessel ever crosses this white line. The whole line of dissection is therefore bloodless; no sponging is needed, and every tissue is accurately identified.

I have performed a number of common-duct operations under this technic, with a resultant uneventful convalescence such as is well illustrated by the chart shown here.

Osborn Building.

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# MAN, THE PRINCIPAL ETIOLOGIC FACTOR IN THE PERPETUATION OF MALARIA, WITH SPECIAL REFERENCE TO THE ENDEMICITY OF THE DISEASE IN THE TEMPERATE ZONE *

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The very brilliant results that have been obtained in certain parts of the world in the eradication of malaria by consistent campaigns against the mosquito are probably the direct result of the fact that another campaign, of equal promise, has been sadly neglected in other parts, where, by reason of soil conditions, we cannot expect to be able to eradicate, or even materially to reduce, the anopheles. I refer to the possibilities *of a campaign against the sexual forms of the* plasmodia in man.

The question arises, are we content to wait for the development of certain of our agricultural lands before ridding ourselves of a disease the economic loss from which is so tremendous, and a loss which, in addition to the heavy penalties imposed by death and depreciation of earning power, is actually in itself a heavy barrier to the development of these lands?

The literature on the prophylaxis of malarial fever teems with articles concerning the eradication of the mosquito, and means to prevent this insect from giving malaria to man, while little is said in reference to preventing man from giving malaria to the mosquito. The very marked success in some localities, of the fight against the mosquito should not blind us to the fact that there have also been dismal failures; for instance, the campaign at Mian Mir. Celli[1] considers that, although the destruction of mosquitoes is possible in the laboratory and in small areas, the difficulties in extensive areas are generally insuperable. Harris[2] writes:

> It is not my intention to suggest any less vigilance in destroying the anopheles mosquitoes and their breeding places, and I would urge that these measures be employed to the fullest extent possible. I do maintain, however, that the most important and the most practical measure, at this time, in the crusade against malaria, is the radical cure of those harboring parasites, because every patient cured means one less focus of infection.

If then, as I think all will agree, the eradication of malaria throughout our southland by means of the destruction of mosquitoes depends on the development and drainage of our lands, and is necessarily a matter of many years, should we not at least make an earnest effort to solve this problem by other channels? Ross,[3] one of the greatest advocates of mosquito reduction, in his report on malaria investigations in the Island of Mauritius, writes:

> The second great antimalarial measure, that of case reduction, was originated in 1900 by Koch and Celli, who, feeling doubt as to the possibility of mosquito reduction, urged that

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* Read by invitation before the Fulton County Medical Society, at Atlanta, Ga., March 19, 1914.

1. Celli: Cited by Leslie: Proc. of the Imperial Malarial Conf., Simla, India, 1910, p. 8.

2. Harris, Seale: The Radical Cure of Malaria: Its Importance and How It Is Attained, The Journal A. M. A., Nov. 26, 1910, p. 1881.

3. Ross: Prevention of Malaria, Abst. Pub. Health Rep., Washington, 1910, xxv, No. 3, p. 61.
]

> the best way of dealing with malaria would be to leave the mosquito alone and to cure the human patients from whom the insects became infected. . . . By the use of this method Stephensport, in New Guinea, was cleared of malaria in a few months.

It seems to me that the success of such a campaign in this country is assured and depends entirely on the education of the medical profession and the laity in certain fundamental principles concerning (*a*) the detection of gamete-carriers; (*b*) the formation of gametes in the circulation of man; (*c*) the transfer of these forms from one host to the other, and the evolution of the parasite in man and the mosquito; (*d*) the significance of an early diagnosis and the rational treatment of all malarial infections.

### A. THE DETECTION OF GAMETE-CARRIERS

I am not so optimistic as to believe that we can in a single season detect every gamete-carrier throughout the entire country, but I do believe that a properly organized system could be provided that would gradually result in a decided reduction, if not an entire eradication, of the disease. While the recent observations of Le Prince[4] demonstrated that, in some sections at least, anopheles will fly great distances, I think there is little doubt that in the great majority of places malaria is a local infection; that is, mosquitoes acquire gametes and transmit sporozoites within a restricted area, which means that with the destruction of either the mosquitoes or the gametes within a given area, malaria would be eradicated in that area. The destruction of the mosquito having been found unfeasible, in certain sections, an equally vigilant campaign against the gametes in man's circulation is at least worthy of trial. The large number of persons who harbor gametes without any great inconvenience to themselves has been demonstrated by many observers. Fusco[5] in an examination of 147 children found 90.9 per cent. of those under 3 years, 92.03 per cent. under 7 years, and 74 per cent. of the entire number positive carriers, many of these children giving no histories of malarial infection. Ianni[6] in an examination of 2,000 individuals found the plasmodia in the blood of 53 out of 146 persons in whom there was no clinical evidence of infection. Craig[7] determined positive findings in 48.3 per cent. of 180 children examined in the Philippines. Byrd[8] in an examination of 576 white children and 85 colored children in Florida found 5.7 per cent. positive in the former group and 12.9 per cent. in the latter. Many other illustrations could be cited confirming the observations of these investigators.

Most examinations for a malarial index have been confined to schoolchildren, but inasmuch as adults are also frequent carriers I would urge the dividing of malarial districts under either federal or state control, or both, into areas small enough so that all inhabitants could be examined. To demonstrate the feasibility of this proposal would not be so stupendous a work as one might infer. Selected areas of high malarial morbidity with small populations should constitute the first point of attack in such a campaign. As the work proceeded it would suffice, in the larger areas with a low malarial morbidity, to confine the blood examinations to those giving histories of recent malarial infection.

### B. THE FORMATION OF GAMETES IN THE CIRCULATION OF MAN

It is now generally held that gametes are the offspring of schizogony, that is, that after repeated cycles of the parasite in the human host, certain of the merozoites undergo a change and, instead of continuing the asexual cycle, become sexual forms, remaining such while contained within the human host, resuming the cycle as soon as transferred to mosquitoes capable of harboring the plasmodia. We have not at this time a clear understandng why some infections will produce large numbers of gametes, while others of equal severity produce few if any. We know, however, that, in general, protozoa having both a sexual and an asexual cycle will reproduce asexually so long as conditions are favorable for continued evolution, but as soon as conditions become unfavorable, the sexual cycle is assumed. It is probable that in certain persons resistance to plasmodia is low enough to allow continued reproduction by schizogony, and that, this being possible, gametes do not form.

Thomson[9] has shown that, in cases in which sexual forms do develop, there is a numerical relationship between the asexual and sexual forms, depending on the intensity and duration of the infection. Thus in eight very acute cases a total of 724,000 asexual parasites per cubic millimeter, produced a total of 1,354 sexual forms per cubic millimeter, or a ratio of 535 asexual parasites to one sexual form; in eleven subacute paroxysms a total of 318,700 asexual parasites per cubic millimeter, produced a total of 3,952 sexual forms per cubic millimeter, or a ratio of eighty-one asexual parasites to one sexual form; in twenty-six mild chronic cases a total of 172,360 asexual parasites per cubic millimeter, produced a total of 3,343 sexual forms per cubic millimeter, or a ratio of fifty-two asexual parasites to one sexual form. This elaborate work is of great value in demonstrating the significance of the formation of gametes and will be referred to again in discussing the significance of early diagnosis and rational treatment. Attention is here especially called to the fact that in the acute cases the sexual producing power is a tenth of that in the chronic cases, and considerably less than in even the subacute cases. Not only this, but the same investigations show further that only 37.5 per cent. of the acute cases developed any sexual forms, while 63.6 per cent. of the subacute cases later showed sexual forms and in the chronic cases this percentage was further increased to 69.25. It is clearly shown, therefore, that it is the recurring infections in which gametes are principally formed.

The length of time that elapses between the appearance of asexual and sexual parasites varies in the different types of infection and is no doubt further regulated by the action of the human host on the asexual parasites in regard to the amount of resistance offered this cycle. In the estivo-autumnal fevers

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[illegible] Tr. Fifteenth Internat. Cong. on Hygiene and Demography, v, Part II, p. 544.

5. Fusco: La malaria nell infanzia, Policlinico, 1912, xix, No. 8, p. 261.

6. Ianni, G.: Latent Malaria, Policlinico, Rome, Dec. 4, 1910; abstr., THE JOURNAL A. M. A., Jan. 21, 1911, p. 231.

7. Craig: The Malarial Fevers, Haemoglobinuric Fever and the Blood Protozoa of Man, New York, 1909, p. 233.

8. Byrd: Cited by Henson: Malaria, Etiology, Pathology, Diagnosis, Prophylaxis and Treatment, St. Louis, 1913, p. 123.

9. Thomson: A Research into the Production, Life and Death of Crescents in Malignant Tertian Malaria, in Treated and Untreated Cases, by an Enumerative Method, Ann. Trop. Med. and Parasit., April, 1911, v, p. 62.

the average period required for the development of these forms is twelve days, in the quartan type nine days and in the benign tertian seven days.

The effect of quinin on the formation of gametes has been demonstrated by many observers. Since they evolve from schizonts as a result of the action of the human host on the merozoites, and since further, quinin kills all schizonts, it is plainly evident that, regardless of the unsettled question at this time of the action of this drug on the gametes themselves, with the destruction of the asexual cycle the gametes must become eradicated also.

### C. THE TRANSFER OF THESE FORMS FROM ONE HOST TO THE OTHER AND THE EVOLUTION OF THE PARASITES IN MAN AND THE MOSQUITO[10]

Gametes, having once formed in the blood of man, will remain more or less constant in the peripheral circulation for an indefinite time so far as we know, the length of time necessarily depending on treatment instituted and possibly certain unknown factors. They will no doubt in some instances disappear spontaneously without treatment, occasionally not to recur but in nearly all instances reappearing when conditions become favorable. With our knowledge concerning latent carriers and the formation of gametes, it is evident that when, from a clinical point of view, a malarial subject may be rapidly improving it is just at this time he is the greatest source of danger, as a carrier, to the community in which he resides. While it may not be practicable to quarantine such persons. some effort should be made toward the enactment of legislation providing that malaria be included in the reportable diseases. There are, at present, other diseases included in the reportable group of a great deal less danger to the welfare of the public health than is malaria.

Inasmuch as heavy gamete-carriers are directly responsible for heavy infections, as shown by Christopher,[11] some effort should be made to detect them. The general opinion that a gamete-carrier has to remain one for a protracted period is erroneous, and there is absolutely nothing unpractical in advocating the screening of these carriers, so as to prevent them from infecting mosquitoes. As there is little, if any, danger of anopheles feeding during the daytime the patient may be free to go around as he pleases during the day hours, restrictions being placed on his movements only from sundown to sunrise. While in some instances possibly several weeks will be necessary completely to eradicate these forms from the circulation they can be generally, if not always, reduced to non-infective numbers in a very few days.

I wish to emphasize especially a most valuable auxiliary prophylactic unit present in the entire temperate zone but not applicable to the tropical zone. It is the fact that the evolution of the parasite within the mosquito cannot proceed when the mean temperature is less than 60 F. While it is true that many species of mosquitoes are capable of hibernation during our cold months, the sporozoites and other forms of the plasmodia undergoing evolution in the body of the mosquito die when the thermometer reaches this level. Drake[12] assumed that an average temperature of 60 F. is necessary for the continuation of the evolution of the parasite in the mosquito, and Jansco[13] has demonstrated the significant fact that in a temperature of 16 C. (60.8 F.), or lower, the organisms perish. Inasmuch as the thermometer reaches this level within the entire temperate zone during every winter season, it is self-evident that, with the departure of our winter season and the advent of warm weather, while many mosquitoes may be present, they have been rendered sterile by climatic conditions and are unable to infect man until they succeed in reaching and biting persons who harbor sexual forms of the plasmodia. In this way the mosquitoes become infected again, to remain so during the warm season and are again able to infect any persons on whom they feed. What Leslie[14] writes concerning popular opinion in the Punjab is applicable to all malarial districts:

> One frequently hears matters discussed as if the population were uninfected and remained so until the fever season came around, when any individual was more or less liable to catch infection. It is nearer the truth to say that we have a population already infected and that what happens in the fever season is the "hastening up" of this infection and its kindling into a flame.

A study of the morbidity rate of all malaria-infected foci will show the maximum malarial rate at the height, or toward the end, of the warm season. This is due, in my opinion, not only to the fact that the mosquitoes become more numerous, but that the other focus of infection, infected man, is also largely increased.

### D. THE SIGNIFICANCE OF EARLY DIAGNOSIS AND THE RATIONAL TREATMENT OF ALL MALARIAL INFECTIONS

With the facts established that the sexual forms originate in the asexual cycle, that these forms do not make their appearance until after the asexual cycle has been active for several days and that proper treatment instituted early in the disease, in practically every instance, not only cures the disease but prevents even the formation of gametes, the responsibility of the physician in making an early diagnosis and instituting rational treatment is plainly evident.

While it is not within the scope of this paper to go into a general discussion on the treatment of the malarial infections, I do wish to emphasize the fact that in practically every instance quinin, if properly administered, will cure the disease. The work of Thomson, previously referred to, showing the numerical relationship between the asexual parasites and the later formed gametes demonstrates the value of, and necessity for, the prompt institution of the use of this drug. We have no drug that is as perfect a specific as quinin in malaria, and the fact that in a very few instances it fails should not be used as an argument against its great value.

A significant lesson may be obtained from a perusal of the studies of Ross and Thomson[15] of pseudorelapses in a series of their malarial cases. They cite many instances in which patients suffered apparent relapse while under treatment with quinin, but a careful examination of the blood of these patients by thin and thick film methods failed to reveal any parasites, and a careful examination disclosed that other causes were responsible for the fever exacerbations. They found the most common causes for these pseudo-relapses were latent phthisis, valvular heart disease, Bright's disease, chorea, rheumatism and bronchitis. Vanderhoof[16] reports forty-seven cases of pyelitis, of which twenty-one had been improperly diagnosticated and treated for malaria. When, therefore, quinin does not cure malaria it might be well to question the diagnosis first, the specific action of the drug afterward. That there are exceptional instances in which a resistant form of the parasite is developed, is shown by Ross and Thomson[17] who report a case showing a true parasitic relapse while under vigorous and continued quinin treatment. I agree with Brem,[18] who writes:

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[10] Owing to lack of space, a description of the evolution of the parasite is omitted in this text. Those not familiar with it are referred to any text-book on the subject.

[11] Christopher: Proc. of the Imperial Malarial Conf., Simla, India, p. 40.

[12] Drake: Cited by Deaderick, A Practical Study of Malaria, p. 39, Philadelphia, 1909.

[13] Jansco: Cited by Craig: The Malarial Fevers, Haemoglobinuric Fever and the Blood Protozoa of Man, New York, 1909, p. 109.

[14] Leslie: Proc. of the Imperial Malarial Conf., Simla, India, p. 41.

[15] Ross and Thomson: Pseudo-Relapses in Cases of Malarial Fever during Continuous Quinin Treatment, Ann. Trop. Med. and Parasit., December, 1911, p. 409.

> Chronic malaria and malaria cachexia are much-abused terms; they describe a condition and not a disease, and should be used only in elaboration of a diagnosis of malarial fever, for which proper cause should be shown.

There is little doubt in my mind that the convenient misapplication of these terms in cases in which the true condition is hard to ascertain, tends to discredit the most potent specific drug in our possession.

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# THE CULTIVATION OF TISSUE CELLS IN VITRO AND ITS PRACTICAL APPLICATION *

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In 1901, Leo Loeb[1] published an account of the cultivation of epithelial cells from the guinea-pig embryo. He embedded bits of epithelium in solidified blocks of agar or serum and then planted these in subcutaneous pockets of adult guinea-pigs, from which they were excised at stated intervals, embedded in celloidin and sectioned serially. He thus used the adult pig as a living incubator of constant temperature with a constant flow of fresh sterile nourishment. He found that epithelium can grow without the presence of connective or other tissue, but in the absence of connective tissue, epithelial growth seems to be self-limited with no development of normal formations.

The first reports of the cultivation of animal tissues outside of the body were those made by R. G. Harrison[2] in 1907 and again in 1910. He cultivated successfully bits of nervous tissue, using the excised medullary folds from early frog embryos in solidified lymph from the lymph-sacs of anesthetized adult frogs. This method was very difficult and only a limited amount of lymph was obtainable from one frog (5 or 6 drops).

In 1910, M. T. Burrows,[3] working in Harrison's laboratory, substituted frog's plasma for lymph, and later used chicken plasma with chick embryo tissues, and then various other plasma and tissues and serum agar. The methods of Harrison and Burrows have been adopted by Alexis Carrel for his work on continuous life of tissue *in vitro* and tissue preservation for surgical purposes. He and Burrows and others have changed and elaborated the technic from time to time, and it has probably not yet been standardized.

The plasma for these cultures may be kept liquid until used if the blood is collected in paraffined tubes, the red blood-cells centrifuged out, and stored in the ice-chest; or blood may be collected in sodium oxalate solution and the oxalate precipitated out quantitatively with calcium chlorid just before using, when the plasma will jelly quickly; or plasma may be replaced with serum agar. Carrel and Burrows found most vigorous growth in plasma rendered slightly hypotonic by dilution with sterile distilled water, or better, plasma diluted with embryonal juice. G. C. Weil, however, asserts that epithelial tissues grow best in serum agar. Various observers using these methods have obtained growths from most embryonal and many adult tissues of different species of animals, and from fragments of avian, mammalian and human tumors, but no one has yet reported successful cultivation of normal human tissues. Tissues will not grow when free in liquid mediums, and adult tissues grow only in plasma. Embryonal tissues, however, grow well in serum agar, and M. R. and W. H. Lewis obtained growth of embryonal tissues in Ringer's solution plus bouillon and even in sterile saline solutions. In the latter cases, however, the growth is very limited and dependent on the amount of stored nourishment in the cells rather than any nutrient properties of the salines. In using liquid mediums a silk veiling or threads must be used as support for the cells as they will not grow without.

To obtain uniformly successful growths of tissue cells *in vitro* great care must be exercised in the technic, as slight variations influence results very markedly. The plasma for this purpose may be autogenous (from the same animal as the tissue) for adult tissues, or homogenous (from an animal of the same species), or even heterogenous (from different species), or mixed for embryonal cultures. Chick embryo tissues will grow well in chicken, dog, rabbit or human plasma. I have worked only with adult and embryonal chicken tissues in chicken plasma and serum agar. I have obtained growth from chicken kidney, liver and heart (connective-tissue cells only from the last), and from embryonal heart, liver, spleen, kidney, brain, cord, eye, skin, lung and intestine. Fragments of embryonal intestine planted in plasma will continue peristaltic contractions for from twenty-four to forty-eight hours, and heart tissue I have known to pulsate as long as eleven days after planting, though I have never seen pulsation in new growth from heart cultures. Much of my work has been with heart tissue from embryos ranging from four to sixteen days old, the most satisfactory growths being from seven-day to eleven-day hearts. The younger heart tissues pulsate so violently that they are apt to tear loose from their plasma supports and then contract permanently, and the older ones are slow to start pulsating, pulsate more sluggishly and make less growth.

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[16] Vanderhoof: Douglas: The Pseudomalarial Types of Pyelitis, THE JOURNAL A. M. A., April 20, 1912, p. 1172.

[17] Ross and Thomson: A Case of Malarial Fever, Showing a True Parasitic Relapse, during Vigorous and Continuous Quinin Treatment, Ann. Trop. Med. and Parasit., February, 1912, p. 539.

[18] Brem, Walter V.: Studies of Malaria in Panama: 1. Clinical Studies of Malaria in the White Race, Arch. Int. Med., December, 1910, p. 646.

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[1] Loeb, Leo: Arch. f. Entwcklngsmech. d. Organ., 1901, xiii, 487.

[2] Harrison, R. G.: Proc. Soc. Exper. Biol. and Med., 1907, iv, 140; Jour. Exper. Zool., 1910, ix, 787.

[3] Burrows, M. T.: Smithson. Rep., 1910, p. 573.

The plasma I obtain by bleeding a young healthy chicken from the jugular vein through a glass cannula sterilized in olive oil, the first few drops of blood mixed with oil being discarded. The blood is collected in paraffin-lined glass tubes, chilled and kept chilled by immersion in ice-water, and as soon as possible centrifuged to remove the blood-cells. I have never succeeded in obtaining plasma entirely free from red cells, owing to fear of prolonged centrifuging heating the blood sufficiently to cause coagulation. After centrifuging, the clear straw-colored plasma is carefully drawn off with a fresh paraffin-lined pipet into fresh paraffined tubes and if not for immediate use is stored in the ice-chest. If kept at from 4 to 6 degrees C. chicken plasma may be kept liquid for over two months. I have used successfully plasma so stored for as long as twenty-three days, but found that it did not make so firm a jelly, and growth of tissue cells in it was not so vigorous or rapid as in fresh plasma. I usually obtain from four to six small centrifuge tubes of blood from a chicken, bleeding to death, and this yields about half as much clear plasma, which I store in small lots so as to avoid too frequent dipping into one tube.

The tissue for use in planting must be taken from a live or just killed animal, and must be kept from drying by handling and making all comminutions in Ringer's solution. Chick embryo tissues I obtain by flaming the egg and then cutting a circular window in the side over the germinal area, when the embryo can be lifted out with sterile forceps, the membranes severed, and the embryo dropped in a dish of Ringer's solution where the tissue desired can be dissected out. The tissue is then cut into minute fragments, a fraction of a millimeter in diameter, with a cataract or other sharp knife and a mounted needle, and transferred on the point of the knife to the surface where it is to be grown, along with a little saline solution to prevent drying.

The cultures may be of three kinds: first, hanging-block cover-glass preparations containing from one to six very minute fragments (0.25 mm. or less) mounted in one or two drops of plasma; second, larger cultures, several cubic centimeters in diameter, containing numerous somewhat larger fragments on the under-surface of glass plates used as covers to glass boxes containing a layer of sterile water to keep the cultures from drying; and third, similar boxes or Gabritschewski boxes arranged with a concave receptacle in the center to collect the fluid dropping from the cultures (extruded serum and digested plasma) and keep it free from dilution. These last are necessary only when one is studying antibody production or attempting to analyze the metabolic products resulting from the cultures. For large cultures some workers use Petri dishes, but I prefer glass boxes with ground rims, as they are more easily sealed. For the cover-glass preparations thick slides with deep, round, flat-bottomed cells (culture slides) are preferable to the ordinary hollow-ground slides. All cultures are sealed with petrolatum or soft paraffin to keep in moisture and keep out infection, though in cover-glass preparations molds will occasionally grow in through this.

The final comminutions of tissue should be made on the surface in which they are to be planted to avoid undue handling of the minute fragments. Tissues cut with a sharp knife will make better growth than those teased apart. The plasma, diluted to the desired point, is taken up with a fresh paraffined pipet and dropped on the tissue fragments, where it soon solidifies, leaving them embedded in a clear jelly. The cover-glasses or plates are inverted and sealed with soft paraffin at once and placed in the incubator, where they are kept at constant temperature; 39 C. is the optimum temperature for chick tissues. If the plasma is slow in solidifying it may be hastened by the addition of a drop or two of muscle or embryonal extract.

Cultures so prepared may be studied from time to time in the living condition under the microscope, a warm stage being used or preferably a warm box, in which the microscope is kept; the low power is used for the box cultures and low and high powers for the cover-glass preparations. For study of the cells and for permanent preparations they may be fixed by any of the usual methods. The cover-glass preparations may be stained and mounted as they are in balsam, and the box cultures, after fixing and hardening in alcohol, freed carefully from the glass and embedded in paraffin or celloidin and sectioned and then stained.

In these cultures the plasma has a twofold function, acting as a support and framework for cell growth, some support being absolutely essential, and also furnishing nourishment. The cells obtain their nitrogenous food by digestion of the plasma proteids to form amino-acids and possibly tryptophan.

Embryonal tissues start growth almost at once; I have seen undoubted growth in one case within an hour. Adult tissues have a latent period before growth begins of from twelve to twenty-four or more hours. Growth continues for from five to ten days or more (I have never seen it continue over eleven days), being limited by the amount of nourishment available and by the accumulation of waste products within and around the cells. Life in connective-tissue cultures may be prolonged indefinitely by washing cultures for a few minutes at room temperature in Ringer's solution and replanting in fresh plasma, but extreme care must be exercised to prevent bacterial contamination. For this work it is best to use a small square of silk veiling on the cover-glass as an added support for the tissues so that they will be less disturbed by handling. Carrel,[4] by this method, using two parts of chicken plasma with one part of eight-day embryo juice, has kept connective tissue from embryo heart alive and growing for over sixteen months, and Ebling[5] reports growth for over a year, replants being made every two or three days. Carrel[6] has also demonstrated that fresh tissues, if placed at once in deep tubes of petrolatum or Ringer's solution (sterile, of course) and sealed, may be kept in "latent life" in cold storage for some days or weeks, and if then planted in plasma and incubated they will become active and grow like fresh tissues.

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[4] Carrel, A.: Jour. Exper. Med., 1912, xv, 516.

[5] Ebling: Jour. Exper. Med., 1913, xvii, 273.

[6] Carrel, A.: The Preservation of Tissues and Its Applications in Surgery, The Journal A. M. A., Aug. 17, 1912, p. 523.

The new cells developing from these cultures are of two general types, the first to appear being elongated bipolar or multipolar spindle cells, the young undifferentiated connective-tissue cells, usually with elongated nuclei having their long axes parallel with the long axes of the cells, often in young cultures with two or more nuclei in each cell. These cells radiate in all directions from the original fragment, some forming rays of connected cells, some interlacing their processes to form a network and others free and unattached. The second type of cells appearing later are spherical or polygonal with spherical nuclei. These represent differentiated epithelium and vary in size and shape, depending on the type of epithelium from which they spring. Both types of cell when young have ameboid properties, as shown by their wandering out into the clear plasma. The fusiform cells may frequently be observed with phagocytized red blood-cells within them. Polymorphonuclear leukocytes, being themselves degeneration cells, do not multiply but do wander out away from the original tissue, but lymphocytes and myeloblasts do multiply by mitosis as shown by Awroroff and Timofeiewsky,[7] and amitotically as shown by Foot.[8] Both connective tissue and epithelial cells in young cultures show beautiful mitotic figures when properly fixed and stained. As the cultures age the growth becomes slower and the cells fill with granules and droplets of metabolic products of a fatty nature, as shown by osmic acid staining. The droplets increase in size and coalesce to form large drops seen as vacuoles in stained preparations, the cells draw in their processes and round out as though edematous, the cell wall and the nuclei finally disintegrate after cell death and there remains only a collection of masses of fat droplets.

In making these cultures various accidents must be guarded against in order to insure success. First, as I have said before, strict asepsis is absolutely essential in making cultures, in preparing tissue and in collecting and storing plasma. In collecting plasma, coagulation is prevented by using an oiled cannula, by thoroughness in paraffining tubes and pipets, by keeping the plasma cold by the use of ice-water, and by speed in collecting and centrifuging. This last is not so important with chicken plasma as with that of some mammalia. Rat and mouse plasma will jelly in half an hour; human and dog plasma will keep a few days, while chicken plasma, if stored in the cold, will remain fluid for over two months. In making the cultures themselves reasonable speed must be observed and it is best to work in rather a warm room or on a warm table to prevent chilling of the cells. Also drying must be avoided, and as soon as the plasma has solidified the cultures must be placed in the incubator and kept at a constant temperature and must not again be exposed to room temperature for any length of time. If cultures fail to grow one of the following reasons is responsible:

1. Bacterial infection.
2. Chilling of the tissue.
3. Drying of the tissue.
4. Searing of the tissue with too hot a knife.
5. Alterations in incubator temperature.

I have obtained growth and pulsation from chick embryo heart cultures placed in the incubator one hour after the egg was opened, but I usually try to work more rapidly than this.

Various factors influence the rate, duration and amount of growth, so care must be exercised in making comparisons between different cultures. For comparative studies of external influences it is best to use tissues from the same embryo or one of the same age, planted in the same lot of plasma with the same dilution. The factors influencing growth are:

1. Age of animal or embryo from which tissue is taken (growth being inversely proportional to age).
2. Age of plasma after bleeding (fresh plasma giving the best result).
3. Age of animal from which plasma was taken (again inversely proportional).
4. Time of exposure of tissue to room temperature.
5. Condition of animal from which plasma was taken.
6. Amount and nature of diluent used for plasma (the optimum dilution varying with tissue and animal).
7. Source of plasma, autogenous, homogenous, heterogenous or mixed (usually autogenous giving the best results for adult tissues and homogenous for embryonal).
8. Kind of tissue used (adult glandular tissue grows very slowly, while embryonal spleen may multiply forty-fold in twenty-seven hours).
9. Proportion of plasma to tissue.
10. Position of tissue in plasma (on lower surface, in depth or against glass).
11. Thickness of the layer of plasma as it affects proportion of plasma to tissue and position of tissue in plasma.
12. Temperature of incubation.
13. Thoroughness of sealing of cultures as it affects drying.
14. Amount and nature of bacterial or mold infection (molds usually not hindering growth and the influence of different bacteria varying greatly).
15. Number of washings and replantings of tissue. After several replantings the cells become accustomed to artificial life and grow more freely.

Peyton Rous[9] has demonstrated the production of acid by growth of adult tissues and uses litmus-tinted mediums to demonstrate growth, any fragments which do not grow remaining blue, while a pink color is a macroscopic indication of growth. Very young embryonal tissues, however, remain colorless. In actively growing cultures growth is seen by the naked eye as a halo around the original tissue.

Now that we have reviewed the history and methods of tissue cultivation *in vitro*, let us consider to what uses it has been and may be put.

Harrison[2] first used the method to study the origin and growth of nerve-fibers in the embryo, and Ingebrigtsen[10] and Burrows[11] have demonstrated degeneration and regeneration of nerve-fibers in cultures, the former obtaining growth of nerve-fibers from the cerebellum of young cats and guinea-pigs. Axis cylinders grow very rapidly, 1 to 1.5 microns per minute, but their growth is limited to from forty-eight to seventy-two hours.

Various other observers have studied and are studying phases of cell growth, multiplication and degeneration, the cultures showing beautiful karyokinetic figures, and degeneration processes being well brought out by osmic acid fixation. Awroroff and Timofeiewsky[7] have recently published some interesting observations on leukemic blood, claiming the multiplication of white blood-cells, their transformation into fixed cells, giant cells and macrophages and the development of leukemic tumors from such cells retained from the blood-stream in various organs. They seem to prove the view that in wound-healing and tissue regeneration a portion of the white cells alter to form fixed cells. Foot[8] has studied hematogenesis in bone-marrow cultures from chick embryos. He finds the development of polymorphonuclear leukocytes from a mesenchymal lymphoid type of cell and rapid amitotic proliferation from unripe small types. He says that all cells of chicken-bone marrow can undergo a transformation to a type of cell resembling although not proved to be identical with the cells of connective tissue. Lambert and Hanes[12] and Weil[13] have produced foreign body giant cells in cultures at will by the introduction of irritants.

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[7] Awroroff and Timofeiewsky: Russk. Vrach, 1913, p. 549.
[8] Foot: Jour. Exper. Med., 1913, xvii, 24.
[9] Rous, Peyton: Growth of Tissue in Acid Media, Jour. Exper. Med., 1913, xviii, 183.
[10] Ingebrigtsen: Jour. Exper. Med., 1913, xvii, 132; 1913, xviii, 412
[11] Burrows: Jour. Exper. Zool., 1911, x, 63.

The action of various mediums on cell growth, especially of various saline substances, has been studied by Carrel and Burrows,[14] Ingebrigtsen,[15] M. R. and W. H. Lewis,[16] and Legendre,[17] and the effect of plasma of alien species on normal and tumor tissues by Carrel and Burrows,[18] and Lambert and Hanes.[19]

The action of various deleterious agents on growth may be studied in these cultures; such as the effect of heat and cold on the mediums and tissues, as studied by Ingebrigtsen[20] and Lambert,[21] and the action of ricin as studied by Levaditi and Mutermilch.[22] They added ricin to cultures of kidney and heart cells and found that it arrested multiplication of both, but had no influence on the pulsations of the latter. With splenic cultures it also prevented migration of the leukocytes. The same authors[23] added cobra venom to cultures of heart and spleen of embryo chicks and found that it prevented the formation of new fusiform connective-tissue cells and prevented migration of cells even when previously heated to 100 C. The absorption of the poison was very rapid, but if the exposure was not too long the effect could be counteracted by the further addition of anticobra serum. Previous addition of antiserum will prevent any deleterious action of the venom.

The effect of various gases, as oxygen, nitrogen, hydrogen, carbon dioxid and monoxid and methane, of chemicals in solution and of light rays, as Roentgen rays, radium and ultraviolet rays may be studied on these cultures. Levaditi and Mutermilch[24] have studied the action of ultraviolet light and find that an exposure of from twenty to thirty minutes will check connective-tissue growth and cell migration. I have planned in the future to consider the action of gases and of Roentgen rays myself if opportunity avails.

Interesting studies have been made on the subject of wound healing by E. S. Ruth,[25] using mass cultures of frog skin with windows cut in the center.

The growth and transmissibility of various tumors is being studied by several different workers. Rous[8] and Carrel and Burrows[26] have cultivated Rous chicken tumors due to a filterable agent, Carrel and Burrows,[27] and Albrecht and Joannovicz[28] have cultivated human malignant tumors in blood taken from the patient's arm vein at the time of operation, and Lambert and Hanes[29] have cultivated rat and mouse sarcoma and carcinoma. The last observers note that in carcinoma cultures there is often first a growth of connective tissue or sarcoma-like stroma cells. Doyen, Lytchowsky, Browne and Smyrnoff[30] are also studying tumor growth, but have not reported any different results from others.

From the study of *in vitro* cultures Carrel[6] developed his suggestion of the preservation of tissues in latent life in cold storage for surgical purposes.

Pfeiler and Lentz[31] mention casually in an article on another subject the fact that they have been studying the influence of various micro-organisms on tissue cultures with reference to chemotaxis, phagocytosis and nuclear changes, but do not give any account of their findings. My own work has been on the study of the action of the pathogenic bacteria and their products on tissue cultures *in vitro,* and I hope soon to publish some interesting observations on these lines. These cell cultures make excellent culture mediums for bacteria, as we have in them, as it were, living and actively growing mediums producing in nascent form the amino-acids now recognized as important bacterial foods. It is to supply these acids that Noguchi adds tissue fragments to his spirochete mediums and Rivas trypsinizes his egg medium for the rapid differentiation of cholera. I am in hopes that on these cultures we may be able to cultivate more of the strictly or nearly strictly parasitic micro-organisms that grow with difficulty or not at all on ordinary mediums. In these cultures we have an opportunity hitherto wanting of watching under the microscope the interaction of bacteria and tissue cells.

Carrel and Ingebrigtsen[32] have demonstrated the production of hemolysins in tissue cultures by adding washed goat red blood-cells to fresh cultures of guinea-pig bone-marrow and lymph-glands and, after four or five days, testing the digested mass with washed goat corpuscles. The development of hemolysins was preceded by phagocytosis of the original red cells in the culture. Herman Lüdke[33] has also demonstrated the production of agglutinins and hemolysins in these cultures, but he injects a live animal with the bacterial culture or red cells and kills the animal in twenty-four hours, when tests show no antibodies have yet been formed, and makes cultures of tissue from the freshly killed animal in homogenous serum and incubates for from two to five days. Then on testing the serum the antibodies are found to have developed *in vitro* in the extirpated cells. He also obtains results with the use of Ringer's solution in place of serum, so this shows that growth is not essential for antibody formation. Hadda and Rosenthal[34] have also been studying the action of normally present hemolysins in serums. Lambert[35] has demonstrated the formation of cytotoxins for mouse sarcoma cells in the blood of rats immunized with such sarcoma. H. Reiter,[36] using Carrel and Ingebrigtsen's methods, has demonstrated that kidney cells as well as cells of the hemopoietic organs can produce agglutinins, and Przygode[37] has repeated the work of Carrel and Ingebrigtsen and of Lüdke on immune body production.

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[12] Lambert and Hanes: Jour. Exper. Med., 1912, xv, 510.

[13] Weil: Jour. Path. and Bacteriol., 1913, xviii, 1.

[14] Carrel and Burrows: Jour. Exper. Med., 1913, xviii, 287.

[15] Ingebrigtsen: Jour. Exper. Med., 1912, xvi, 421.

[16] Lewis, M. R. and W. H.: Anat. Rec., 1912, v, 277.

[17] Legendre: Compt. rend. Soc. de biol., 1913, lxxv, 246.

[18] Carrel and Burrows: Jour. Exper. Med., 1911, xiii, 562.

[19] Lambert and Hanes: Jour. Exper. Med., 1911, xiv, 129.

[20] Ingebrigtsen: Jour. Exper. Med., 1912, xv, 397.

[21] Lambert: Jour. Exper. Med., 1913, xviii, 406.

[22] Levaditi and Mutermilch: Compt. rend. Soc. de biol., 1913, lxxiv, 611.

[23] Levaditi and Mutermilch: Compt. rend. Soc. de biol., 1913, lxxiv, 1305; 1913, lxxiv, 1379.

[24] Levaditi and Mutermilch: Compt. rend. Soc. de biol., 1913, lxxiv, 1180.

[25] Ruth, E. S.: Jour. Exper. Med., 1911, xiii, 422; May, 1911, 599.

[26] Carrel, Alexis, and Burrows, M. T.: Cultivation of Sarcoma Outside of Body (a Second Note), The Journal A. M. A., Oct. 29, 1910, p. 1554.

[27] Carrel, A., and Burrows, M. T.: Human Sarcoma Cultivated Outside of the Body (a Third Note), The Journal A. M. A., Nov. 12, 1910, p. 1732.

[28] Albrecht and Joannovicz: Wien. klin. Wchnschr., 1913, No. 20, p. 781.

[29] Lambert, R. A., and Hanes, Frederic M.: Growth in Vitro of the Transplantable Sarcomas of Rats and Mice, The Journal A. M. A., Jan. 7, 1911, p. 33; Jour. Exper. Med., 1911, xiii, 495; Columbia Univ. Press, 1912, ii, 161.

[30] Browne and Smyrnoff: Compt. rend. Soc. de biol., 1913, T. 74, 1331.

[31] Pfeiler and Lentz: Centralbl. f. Bakteriol., 1913, i, 68, 122.

[32] Carrel, A., and Ingebrigtsen: Jour. Exper. Med., January, 1912, xv, 287.

[33] Lüdke, Herman: Berl. klin. Wchnschr., 1912, xlix, 22, 1034.

V. H. Moon[38] has cultivated the virus of rabies in test-tubes. He used the brain of a dog injected with street virus and killed in from twelve to eighteen days on the appearance of the first symptoms. At this time no Negri bodies or only very minute ones were found, but if the tissue is placed in sterile dog serum and covered with olive oil to exclude oxygen and incubated, and one tube examined every twenty-four hours, the Negri bodies will be seen to develop and increase in size and number. He obtains the same results in Ringer's solution and finds continued virulence and presence of Negri bodies in fifth and sixth subcultures.

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[34] Hadda and Rosenthal: Ztschr. f. Immunitatsforsch. u. exper. Therap., 1913, Orig. 16, 524.

[35] Lambert: Jour. Exper. Med., 1911, xiii, 453.

[36] Reiter, H.: Ztschr. f. Immunitätsforsch. u. exper. Therap., 1913, Orig. 18, 5.

[37] Przygode: Wien. klin. Wchnschr., 1913, No. 21, p. 84.

[38] Moon, V. H.: Jour. Infect. Dis., 1913, xiii, 232.

[39] Steinhardt, Israeli and Lambert: Jour. Infect. Dis., 1913, xiii, 294.

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**Constitutionality of Illinois Child Labor Law Affirmed.**—The United States Supreme Court holds that the Illinois child labor law is valid. The decision refers particularly to Section 11, which prohibits the employment of children under 16 in various hazardous occupations. It is said that it was clearly within the power of the legislature to secure the safety of the young by imposing absolute requirements of the kind mentioned in the act. The decision in substance states that a minor employed contrary to the provisions of the child labor law if injured in such employment has a right of action and may recover damages even if an employer in hiring him acted in good faith and relied on the representations of the minor that he was over 16. In the case on which the decision is based, the boy presented an affidavit as to his age and the company failed to investigate the correctness of the statement that he was over 16. The statute of 1913 places the responsibility as to the correct age of a minor on an employer.

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# BENZOL IN THE TREATMENT OF POLYCYTHEMIA RUBRA

## WITH REPORT OF A CASE

JAMES S. McLESTER, M.D.
BIRMINGHAM, ALA.

The use of benzol (benzene, $C_6H_6$), as a medicinal agent was suggested by the observations of Selling,[1] who studied its influence in the anemia of certain factory-girls whose occupation led to the inhalation of benzol gas. His subsequent experimental work on animals showed that benzol caused, first, a marked reduction in the white blood-cells, and later a diminution in the red blood-cells. Examination of the tissues of animals thus poisoned indicated a selective action on the bone-marrow.

Von Korányi[2] was the first to make practical use of those observations. Stimulated by Selling's work, he administered benzol to a patient with splenomyelogenous leukemia and produced a remarkable fall in the leukocyte-count as well as reduction in the size of the spleen and improvement in the patient's general condition. He recommends its use in leukemia and also suggested that it might be of value in polycythemia. Numerous other observers have subsequently attested the value of this drug in leukemia. A recent article by Barker[3] gives a summary of the literature together with the report of a case. In the literature of polycythemia, however, I can find only the following instances of benzol administration:

Korányi[2] observed the red blood-cells to fall from 9,000,000 to 6,700,000 after three weeks' benzol therapy.

Moewes'[4] case was one of long standing. The patient had exhibited a somewhat cyanotic appearance for about twenty years. Twenty-three years previously he acquired syphilis. At one time he was in Senator's clinic with nephritis, at which time he had an enlarged spleen, and 11,000,000 red blood-cells. He there underwent numerous "cures" for polycythemia, including repeated venesection and the administration of both mercury and tuberculin, all to little avail. Salvarsan later produced slight but temporary improvement. Moewes began the administration of benzol when the red cells were 9,500,000. Under the influence of this drug these cells fell in six weeks to 6,500,000, and the patient also showed improvement in his general condition. The dosage is not stated. For six months the blood remained apparently unchanged, when, without obvious cause, the patient developed acute nephritis and died of uremia. At necropsy the tissue changes produced by the nephritis and the old syphilis predominated and prevented any satisfactory study of the polycythemia. Moewes speculates on the possible rôle of benzol in producing the nephritis; I shall refer to this later.

Beltz[5] reported a case of polycythemia at a recent meeting of the Allgemeiner Aertzlicher Verein zu Köln, in which the administration of "300 capsules, each 0.5 gm. of benzol" has produced as yet no influence on the disease.

Kiralify[6] reports two cases of polycythemia, neither with enlarged spleen, treated with benzol. In the eration, the cultures showing beautiful karyokinetic figures, and degeneration processes being well brought out by osmic acid fixation. Awroroff and Timofeiewsky[7] have recently published some interesting observations on leukemic blood, claiming the multiplication of white blood-cells, their transformation into fixed cells, giant cells and macrophages and the development of leukemic tumors from such cells retained from the blood-stream in various organs. They seem to prove the view that in wound-healing and tissue regeneration a portion of the white cells alter to form fixed cells. Foot[8] has studied hematogenesis in bone-marrow cultures from chick embryos. He finds the development of polymorphonuclear leukocytes from a mesenchymal lymphoid type of cell and rapid amitotic proliferation from unripe small types. He says that all cells of chicken-bone marrow can undergo a transformation to a type of cell resembling although not proved to be identical with the cells of connective tissue. Lambert and Hanes[12] and Weil[13] have produced foreign body giant cells in cultures at will by the introduction of irritants.

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[1] Selling: Johns Hopkins Hosp. Bull., 1910, xxi, 33.

[2] Von Korányi: Berl. klin. Wchnschr., 1912, xlix, 1357.

[3] Barker: *Johns Hopkins Hosp. Bull.*, 1913, xxiv, 363.

[4] Moewes: Deutsch. Arch. f. klin. Med., 1913, cxi, 281.

[5] Beltz: München. med. Wchnschr., 1913, lx, 161.

[6] Kiralify: Virchows Arch. f. Path. Anat., 1913, ccxiii, 399.

The action of various mediums on cell growth, especially of various saline substances, has been studied by Carrel and Burrows,[14] Ingebrigtsen,[15] M. R. and W. H. Lewis,[16] and Legendre,[17] and the effect of plasma of alien species on normal and tumor tissues by Carrel and Burrows,[18] and Lambert and Hanes.[19]

The action of various deleterious agents on growth may be studied in these cultures; such as the effect of heat and cold on the mediums and tissues, as studied by Ingebrigtsen[20] and Lambert,[21] and the action of ricin as studied by Levaditi and Mutermilch.[22] They added ricin to cultures of kidney and heart cells and found that it arrested multiplication of both, but had no influence on the pulsations of the latter. With splenic cultures it also prevented migration of the leukocytes. The same authors[23] added cobra venom to cultures of heart and spleen of embryo chicks and found that it prevented the formation of new fusiform connective-tissue cells and prevented migration of cells even when previously heated to 100 C. The absorption of the poison was very rapid, but if the exposure was not too long the effect could be counteracted by the further addition of anticobra serum. Previous addition of antiserum will prevent any deleterious action of the venom.

The effect of various gases, as oxygen, nitrogen, hydrogen, carbon dioxid and monoxid and methane, of chemicals in solution and of light rays, as Roentgen rays, radium and ultraviolet rays may be studied on these cultures. Levaditi and Mutermilch[24] have studied the action of ultraviolet light and find that an exposure of from twenty to thirty minutes will check connective-tissue growth and cell migration. I have planned in the future to consider the action of gases and of Roentgen rays myself if opportunity avails.

Interesting studies have been made on the subject of wound healing by E. S. Ruth,[25] using mass cultures of frog skin with windows cut in the center.

The growth and transmissibility of various tumors is being studied by several different workers. Rous[8] and Carrel and Burrows[26] have cultivated Rous chicken tumors due to a filterable agent, Carrel and Burrows,[27] and Albrecht and Joannovicz[28] have cultivated human malignant tumors in blood taken from the patient's arm vein at the time of operation, and Lambert and Hanes[29] have cultivated rat and mouse sarcoma and carcinoma. The last observers note that in carcinoma cultures there is often first a growth of connective tissue or sarcoma-like stroma cells. Doyen, Lytchowsky, Browne and Smyrnoff[30] are also studying tumor growth, but have not reported any different results from others.

From the study of *in vitro* cultures Carrel[6] developed his suggestion of the preservation of tissues in latent life in cold storage for surgical purposes.

Pfeiler and Lentz[31] mention casually in an article on another subject the fact that they have been studying the influence of various micro-organisms on tissue cultures with reference to chemotaxis, phagocytosis and nuclear changes, but do not give any account of their findings. My own work has been on the study of the action of the pathogenic bacteria and their products on tissue cultures *in vitro,* and I hope soon to publish some interesting observations on these lines. These cell cultures make excellent culture mediums for bacteria, as we have in them, as it were, living and actively growing mediums producing in nascent form the amino-acids now recognized as important bacterial foods. It is to supply these acids that Noguchi adds tissue fragments to his spirochete mediums and Rivas trypsinizes his egg medium for the rapid differentiation of cholera. I am in hopes that on these cultures we may be able to cultivate more of the strictly or nearly strictly parasitic micro-organisms that grow with difficulty or not at all on ordinary mediums. In these cultures we have an opportunity hitherto wanting of watching under the microscope the interaction of bacteria and tissue cells.

Carrel and Ingebrigtsen[32] have demonstrated the production of hemolysins in tissue cultures by adding washed goat red blood-cells to fresh cultures of guinea-pig bone-marrow and lymph-glands and, after four or five days, testing the digested mass with washed goat corpuscles. The development of hemolysins was preceded by phagocytosis of the original red cells in the culture. Herman Lüdke[33] has also demonstrated the production of agglutinins and hemolysins in these cultures, but he injects a live animal with the bacterial culture or red cells and kills the animal in twenty-four hours, when tests show no antibodies have yet been formed, and makes cultures of tissue from the freshly killed animal in homogenous serum and incubates for from two to five days. Then on testing the serum the antibodies are found to have developed *in vitro* in the extirpated cells. He also obtains results with the use of Ringer's solution in place of serum, so this shows that growth is not essential for antibody formation. Hadda and Rosenthal[34] have also been studying the action of normally present hemolysins in serums. Lambert[35] has demonstrated the formation of cytotoxins for mouse sarcoma cells in the blood of rats immunized with such sarcoma. H. Reiter,[36] using Carrel and Ingebrigtsen's methods, has demonstrated that kidney cells as well as cells of the hemopoietic organs can produce agglutinins, and Przygode[37] has repeated the work of Carrel and Ingebrigtsen and of Lüdke on immune body production.

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[12] Lambert and Hanes: Jour. Exper. Med., 1912, xv, 510.
[13] Weil: Jour. Path. and Bacteriol., 1913, xviii, 1.
[14] Carrel and Burrows: Jour. Exper. Med., 1913, xviii, 287.
[15] Ingebrigtsen: Jour. Exper. Med., 1912, xvi, 421.
[16] Lewis, M. R. and W. H.: Anat. Rec., 1912, v, 277.
[17] Legendre: Compt. rend. Soc. de biol., 1913, lxxv, 246.
[18] Carrel and Burrows: Jour. Exper. Med., 1911, xiii, 562.
[19] Lambert and Hanes: Jour. Exper. Med., 1911, xiv, 129.
[20] Ingebrigtsen: Jour. Exper. Med., 1912, xv, 397.
[21] Lambert: Jour. Exper. Med., 1913, xviii, 406.
[22] Levaditi and Mutermilch: Compt. rend. Soc. de biol., 1913, lxxiv, 611.
[23] Levaditi and Mutermilch: Compt. rend. Soc. de biol., 1913, lxxiv, 1305; 1913, lxxiv, 1379.
[24] Levaditi and Mutermilch: Compt. rend. Soc. de biol., 1913, lxxiv, 1180.
[25] Ruth, E. S.: Jour. Exper. Med., 1911, xiii, 422; May, 1911, 599.
[26] Carrel, Alexis, and Burrows, M. T.: Cultivation of Sarcoma Outside of Body (a Second Note), The Journal A. M. A., Oct. 29, 1910, p. 1554.
[27] Carrel, A., and Burrows, M. T.: Human Sarcoma Cultivated Outside of the Body (a Third Note), The Journal A. M. A., Nov. 12, 1910, p. 1732.
[28] Albrecht and Joannovicz: Wien. klin. Wchnschr., 1913, No. 20, p. 781.
[29] Lambert, R. A., and Hanes, Frederic M.: Growth in Vitro of the Transplantable Sarcomas of Rats and Mice, The Journal A. M. A., Jan. 7, 1911, p. 33; Jour. Exper. Med., 1911, xiii, 495; Columbia Univ. Press, 1912, ii, 161.
[30] Browne and Smyrnoff: Compt. rend. Soc. de biol., 1913, T. 74, 1331.
[31] Pfeiler and Lentz: Centralbl. f. Bakteriol., 1913, i, 68, 122.
[32] Carrel, A., and Ingebrigtsen: Jour. Exper. Med., January, 1912, xv, 287.
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Kiralify[6] reports two cases of polycythemia, neither with enlarged spleen, treated with benzol. In the first case, after several months' administration of the drug, up to 5 gm. daily, the red cells were seen to fall from 8,700,000 to 4,800,000, and coincident improvement in all symptoms was noted. During five weeks without benzol the red cells increased to 5,170,000. The second patient was benefited in a similar manner, the red cells falling from 6,500,000 to 4,960,000 and remaining at the latter figure. In this case the drug was given by enema as it could not be retained by the stomach.

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[1] Selling: Johns Hopkins Hosp. Bull., 1910, xxi, 33.

[2] Von Korányi: Berl. klin. Wchnschr., 1912, xlix, 1357.

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[5] Beltz: München. med. Wchnschr., 1913, lx, 161.

[6] Kiralify: Virchows Arch. f. Path. Anat., 1913, ccxiii, 399.

Diet, Roentgen ray exposures of the spleen and long bones, and repeated venesection are the other methods of treatment usually recommended in polycythemia. Reports do not indicate that any of these methods have produced satisfactory results.

I wish to report the case of a patient who showed complete amelioration of all symptoms following the administration of benzol, which improvement continues to hold good after three months without benzol.

The patient, W. D., is 50 years of age, a wine merchant, and has always been temperate in the use of alcohol. The family history is unimportant, and he has never been ill. Syphilis is denied and the Wassermann test is negative. For several years (five or six probably) it has been noted that his complexion was florid and that his lips had somewhat of a bluish tint. He first consulted a physician early in 1911 when he was under rather severe mental strain and had reason for anxiety concerning his business. At that time he complained of "nervousness," headaches, pain in the left hypochondrium, itching of the entire body, which at times was very distressing, and blurring of vision. He states that albumin and casts were at that time found in the urine. All symptoms gradually increased in severity.

I first saw the patient two years later, in March, 1913. The skin was of a "dusky" color and the mucous membrane "bluish-red." The tongue looked somewhat like a piece of raw beef, yet was of a violet tint. The veins of the face were dilated and tortuous. At the apex of the left lung a few fine râles could be heard. The heart was apparently normal, as were the peripheral arteries. Systolic blood-pressure was 140 mm. The spleen could be palpated on inspiration and was a little tender. The size of the liver was apparently normal. The deep and superficial reflexes were preserved. There was no elevation of body temperature. The skin appeared dry. There was no unusual enlargement of the lymph-nodes.

The eyes were examined by Dr. K. W. Constantine, who reported: "The color of the fundus-reflex is darker than usual. . . . The red color of the retinal vessels is denser than normal. . . . There are no hemorrhages or signs of inflammation."

The urine, normal in amount, specific gravity 1.020, contained an abundance of albumin, hyaline and granular casts, and great numbers of red blood-cells. The phenolsulphonephthalein test of kidney function gave normal values.

The red blood-cells were 8,300,000, and the leukocytes, 26,000. The differential count made with Wright's stain is given in Table 1.

TABLE 1.—DIFFERENTIAL COUNT MADE WITH WRIGHT'S STAIN

| | Cells Counted | Percentages |
|---|---|---|
| Polymorphonuclear neutrophils | 471 | 94 |
| Polymorphonuclear eosinophils | 10 | 2 |
| Polymorphonuclear basophils | 0 | 0 |
| Small mononuclears | 12 | 2.5 |
| Large mononuclears | 7 | 1.5 |
| Myelocytes | 0 | 0 |
| | 500 | |

Nothing widely at variance from the normal could be seen in the character of the red cells. Slight variations in size and in tinctorial characters were seen. Occasionally mild polychromatophilia and very rarely a nucleated cell appeared. One megaloblast was found. Beyond great increase in the number of the white cells, at the expense of the polymorphonuclears, these cells presented nothing unusual.

The hemoglobin, estimated by means of 10-c.c. volumetric flasks and the Autenrieth-Königsberger colorimeter, was 185 per cent.

During the following three months, with no treatment beyond diet and hygienic measures, the red cells increased, as shown in Table 2, to 12,700,000, and the leukocytes to 29,000 (June 10, 1913). Slight downward fluctuation followed, and July 21, with the red blood-cells 10,500,000, benzol was begun.

Ascending doses, beginning with 1 gm. three times daily and finally reaching 4 gm. three times daily, of an emulsion containing 25 per cent. benzol, 25 per cent. olive-oil and 50 per cent. mucilage of acacia, were given. Thus, the maximum dose of benzol was 4 gm. per day. A gradual fall in the number of red cells as well as in the number of the leukocytes was noted. After five months (Dec. 13, 1913) the red cells numbered 6,600,000, the whites 10,000. Within the next four weeks the red cells dropped to 5,000,000. Thinking this perhaps an error, I requested the patient to return for another count. On his return three days later the red cells were 4,300,000. The benzol was immediately discontinued. Within the next four weeks the red cells rose to 6,000,000. In the four weeks following they fell to 5,000,000, and for the next seven weeks (February 17-April 8) the red cells have remained stationary.

TABLE 2.—BLOOD-COUNTS, MARCH 24, 1913-APRIL 8, 1914

| Date | Reds | Whites | Hemoglobin |
|---|---|---|---|
| 3/24/13 | 8,300,000 | 26,000 | 180 |
| 4/ 9/13 | 9,000,000 | 24,000 | 185 |
| 4/14/13 | 9,000,000 | 22,400 | ... |
| 5/ 5/13 | 9,200,000 | ...... | ... |
| 5/17/13 | 9,900,000 | ...... | 185 |
| 5/27/13 | 11,300,000 | 29,200 | ... |
| 6/10/13 | 12,700,000 | 27,300 | ... |
| 6/27/13 | 9,600,000 | 28,000 | ... |
| 7/22/13 | Benzol begun | ...... | ... |
| 7/22/13 | 10,500,000 | 22,500 | ... |
| 7/31/13 | 9,900,000 | 21,000 | ... |
| 8/ 7/13 | 9,800,000 | ...... | ... |
| 8/15/13 | 9,200,000 | ...... | ... |
| 8/23/13 | 9,600,000 | ...... | ... |
| 9/13/13 | 8,800,000 | ...... | ... |
| 9/29/13 | 8,300,000 | 15,700 | ... |
| 10/27/13 | 7,500,000 | 17,000 | ... |
| 11/ 8/13 | 7,400,000 | 15,000 | ... |
| 11/28/13 | 6,900,000 | 11,000 | ... |
| 12/13/13 | 6,600,000 | 10,000 | 110 |
| 1/10/13 | 5,000,000 | 7,100 | ... |
| 1/13/14 | 4,300,000 | ...... | ... |
| 1/13/14 | Benzol discontinued | ...... | ... |
| 1/24/14 | 4,500,000 | 10,000 | ... |
| 2/ 3/14 | 6,000,000 | 8,800 | 100 |
| 2/ 5/14 | 6,000,000 | ...... | 105 |
| 2/17/14 | 5,000,000 | 8,700 | ... |
| 3/10/14 | 5,000,000 | 9,500 | 100 |
| 3/23/14 | 5,000,000 | 12,300 | 100 |
| 4/ 8/14 | 4,800,000 | 10,500 | 95 |

Table 3 gives the last differential count made March 10, 1914. This and the differential count above noted represent the extremes in percentages. Counts made on intervening dates show corresponding figures (Wright's stain).

TABLE 3.—LAST DIFFERENTIAL COUNT

| | Cells Counted | Percentages |
|---|---|---|
| Polymorphonuclear neutrophils | 425 | 85 |
| Polymorphonuclear eosinophils | 13 | 2.6 |
| Polymorphonuclear basophils | 4 | 0.8 |
| Small mononuclears | 35 | 7 |
| Large mononuclears | 23 | 4.6 |
| Myelocytes | 0 | 0 |
| | 500 | |

The changes in the urine are noteworthy. The casts and red blood-cells have gradually disappeared, and, though a trace of albumin is now present, it also at one time disappeared. Evidently Moewes' suspicions as to the irritating effect of benzol on the kidney are not confirmed by this case.

During the period of improvement in the blood-picture the patient has shown equal improvement from every other aspect. His appearance is now that of a normal man. The itching, the disturbance of vision and the headaches have completely disappeared. The pain in the left hypochondrium and the pain under the left scapula, of which he frequently complained, no longer disturb him. The spleen cannot be palpated. The suggestive râles formerly heard at the apex of the left lung can no longer be detected. The patient's general sense of well-being is marked. He states that he feels better than he has felt in years.

Benzol in this instance caused occasional disagreeable gaseous eructations but no other disturbance of the stomach.

Since there was a slight fall in the number of the red cells just before benzol was begun, it might be surmised that the subsequent fall to normal was due to natural causes rather than to the drug. On the other hand, such small fluctuations in the red cells are frequently seen in polycythemia, while no case reported has without benzol shown the steady and complete decrease to normal which immediately accompanied the administration of this substance.

The experimental and clinical experiences of the observers above quoted, together with the improvement in this case, justifies, I think the conclusion that benzol is a valuable therapeutic agent in polycythemia.

At the same time, this patient must not be regarded as cured. No doubt we shall see another increase in the red cells, when recourse must again be had to benzol. The ultimate result is as yet a matter of conjecture.

For the suggestion that benzol be used I am very grateful to Dr. W. S. Thayer, who saw the patient a short time before he came under my care.

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# EXTRAPERITONEAL CESAREAN SECTION

## WITH REPORT OF A CASE

S. J. DRUSKIN, B.S., M.D.
Instructor in Gynecology and Chief of Gynecologic Clinic, Fordham University Medical School; Attending Obstetrician Sydenham Hospital; Associate Surgeon Jewish Maternity Hospital
NEW YORK

The management of contracted pelvis and cesarean section has not yet reached so high a degree of perfection as to leave no room for further improvement. I therefore recommend for the treatment of dystocia in contracted pelves an operation which is rarely performed in America, but rather frequently abroad, and which I deem an improvement on the classical cesarean section.

### REPORT OF CASE

Mrs. J. G., age 21, primipara, was admitted to the Sydenham Hospital Jan. 11, 1914, at 6:30 a. m. The patient, a short slender woman, stated that she had been having labor pains every ten minutes for the preceding six and one-half hours and that the membranes had ruptured just prior to her admission. No history was given of rickets or other diseases bearing on the case.

*Examination.*—Pelvis generally contracted. Measurements: interspinous, 19.5 cm.; intercristal, 26; intertrochanteric, 31; conjugate diagonal, 10 minus; conjugata vera, 8¼. Double promontory, moderately projecting. Internal os, obliterated; external os admitted one finger; head of child above the brim; back to the right; small parts to the left. Liquor amnii dribbling away. Labor pains continued but descent into the pelvis did not take place.

January 13, at 11:45 a. m., patient received pituitary extract, 5 minims, hypodermatically. Pains became strong; half an hour later came a gush of liquor amnii. The last examination made at 2 p. m. showed the external os four fingers breadth dilated, membranes ruptured; head well fixed with large diameter in the pelvic inlet. At 4 p. m., thinning of the lower uterine segment having occurred and the fetal heart-sounds being good, extraperitoneal cesarean section was decided on. Patient had been in labor sixty-three hours. Preliminary filling of the bladder, having been unsuccessful, was dispensed with.

*Operation.*—A median incision was made 2 cm. above the symphysis and extending upward 12 cm.; the fascia was incised; the recti muscles and prevascular connective tissue were separated; the bladder also separated from the lower uterine segment on the left side; an incision was made through the ligamentum umbilicale sinistrum, with separation both of the peritoneal fold from the bladder as far as the urachus, sharp and blunt, and of the peritoneal fold from the lower uterine segment on the left; the bladder was retracted to the right. A plexus of large veins was exposed without injury or bleeding. Median incision was made of the lower uterine segment, from 10 to 12 cm. (3 or 4 inches) long; right ear presented; finger was put into mouth and face rotated anteriorly; forceps applied bilaterally; head extracted by flexion with ease, body followed. Child cried. Placenta was removed manually; uterus well contracted; bleeding minimal. Cervical incision was closed by running catgut suture, taking in the entire thickness of the cervix, and covered by a second layer of interrupted suture. The bladder was replaced and fixed above to the peritoneal fold and at the left to the pelvic connective tissue. Drain was inserted; abdominal wound closed in three layers. At the time the uterus was incised, patient received pituitary extract, 1c.c. and ergot 1 c.c.

*Postoperative History.*—The condition of the patient, the next day, was very good. Although it was necessary to catheterize her several times during labor, she now was able to urinate spontaneously in spite of the great separation of the bladder. The patient complained of hunger. The drain was shortened daily and removed entirely on the fifth day. The patient was out of bed on the seventh day. Except for a bronchitis contracted on the fifth day, the patient was well. Examination made February 17 showed no general or local disturbance.

Two questions possibly may be asked: A. Why did I wait over two days before operating? B. What are the advantages of the extraperitoneal section over the classical operation?

A. In patients with contracted pelves with a conjugata vera measurement of 8¼ cm. from 65 to 70 per cent. of cases of labor terminate spontaneously, and we cannot with tape and pelvimeter determine beforehand what the outcome of such cases will be. In primiparas in particular the indications to operate must be exceptionally clear. Nothing but a fair trial for natural labor and careful observation on the part of the attendant during that time can determine whether labor will not terminate without operation.

B. The advantages of the extraperitoneal cesarean section are: (1) lessened bleeding; (2) non-exposure of peritoneum; (3) lessened danger of postoperative hernia, and (4) most important of all, the fact that the operation can be performed at a time when it would no longer be safe to do the classical operation.

1. *Lessened Bleeding.*—In cervical cesarean there is very little bleeding; first, because the lower uterine segment is distended and thinned out, the muscle often being of the thinness of paper; secondly, because no large sinuses are located there; thirdly, because the placenta is not encountered.

2. *Non-Exposure of Peritoneum.*—The peritoneum remains sealed to infection. No blood or questionable liquor amnii can enter the peritoneal cavity. The intestines do not come into the field of operation. There is no cooling or lesion of the abdominal contents. The operative shock is reduced to a minimum.

3. *Exclusion of Postoperative Hernia.*—In spite of the fact that the wound is drained, there is no tendency to postoperative hernia; first, because the abdom-

inal wound can be sutured in layers except at the lower angle, and second, the part drained is outside of the abdominal cavity in the space of Retzius.

4. *Time of Operation.*—The operation can be performed when it would no longer be safe to do the classical operation. In fact, it is generally performed after the woman has been in labor a considerable time, long after the membranes have ruptured and after repeated vaginal examinations by physicians and midwives.

## TECHNIC OF OPERATION

The technic followed by me and recommended in this paper is the combined Latzko-Sellheim method. It is based on a study of about fifty cases at the Wertheim clinic in Vienna.

The underlying principle is the separation of the bladder to one side (Latzko), and the separation of the plica upward (Sellheim). This gives the surgeon sufficient room to extract the child, and at the same time obviates extensive separation of the bladder or peritoneum from the lower uterine segment. It is thus possible to avoid subsequent paralysis or gangrene of the bladder, and injury to the peritoneum at the time of the operation. Further, if the operator adheres to the rule not to separate the peritoneum from the bladder beyond the urachus where it is firmly attached, injury to the bladder or peritoneum can be avoided without difficulty. This is a vital point in the operation, for if either the bladder or peritoneum is opened, the operation fails to be a true extraperitoneal operation.

The bladder may be separated from the lower uterine segment on the left or right side. I prefer the left side, first, because in pregnancy the bladder inclines more to the right, and, secondly, because as a rule the lower uterine segment is more distended on the left side. If, however, the presenting part is on the right side causing marked distention there, I separate on that side.

The ureters and large blood-vessels do not come within the field of operation. Caution must be observed, however, not to dissect too far laterally, lest large venous plexuses be encountered, resulting in severe and troublesome bleeding, or the iliac blood-vessels may even be exposed.

*Time for Operating.*—The operation can be done at any stage of labor, but is best done when there is distention of the lower uterine segment. The longer one can wait without causing a rupture of the uterus, the higher will the reduplication of the plica be carried up and the easier will be the operation.

*Position of the Patient.*—It is advantageous to place the patient in the Trendelenburg position before extracting the child. This aids by causing the fetal head to recede. As soon as the child is extracted, the patient should be changed to horizontal or median Fowler. The blood and amniotic fluid will thus drain through the vagina, and any bleeding from the uterus is noticed at once.

*The Bladder.*—I do not concern myself much about the bladder contents. At the Wertheim clinic operations were performed with filled, half-filled and empty bladder, but I prefer a moderately (from 100 to 150 c.c.) filled bladder, or a well-filled bladder (from 200 to 300 c.c.) with a self-retention catheter which enables me to empty the bladder contents at will. I always found room enough, but it is certain that an overfilled bladder obstructs the field of operation, while an empty bladder renders the finding of the bladder boundary and its dissection more difficult. The filling of the bladder has the further advantage of lifting still higher the plica vesico-uterina.

*Abdominal Incision.*—I prefer a median incision just above the symphysis, from 12 to 14 cm. in length.

A Pfannenstiel incision is not advisable; first, because it may be necessary to drain from above; secondly, because a second cesarean section on the same patient may sometime be necessary. Besides, the danger of hernia with median incision after an extraperitoneal cesarean is negligible.

*Delivery of the Child.*—In vertex presentation the fetus may be expressed, with the aid of a finger placed in the mouth and traction applied on the upper jaw. I prefer extraction by the application of forceps to the head. If a Latzko forceps is at hand, I permit the vertex to remain in the wound and extract by extension. Otherwise, a finger is hooked into the mouth, the face is rotated into the incision, ordinary forceps are applied bilaterally and the fetus extracted by flexion. The rest of the body follows with ease.

*Drainage.*—If the wound is perfectly dry and the case is not too suspicious, drainage may be dispensed with. When there is any doubt, the wound should be drained. This can be done either from above, through the abdominal wound or below through the vagina. The uterine cavity is not drained.

*Sutures.*—Sutures may be interrupted or continuous, of silk or catgut. In nearly all cases at the clinic interrupted silk sutures were used. I take in the entire thickness of the lower uterine segment at once, and cover this by a second layer of sutures. I think it advisable not only to replace the bladder, but also to secure it laterally as well as above with catgut sutures. The abdominal wall is closed in three layers.

*Time Consumed and Difficulty of Procedure.*—The extraperitoneal cesarean section is more difficult and more time-consuming than the classical operation; but success does not depend so much on the rapidity as on the exactness with which an operation is performed. Neither mother nor child suffers through the longer time consumed. In fact, one who has observed postoperative cases of classical cesarean section with the patients often suffering intensely and nearly always in discomfort, is struck by the well-being of patients who have undergone the extraperitoneal cesarean section.

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**Blindness in Cebu.**—L. Schwartz of the Public Health Service (*Pub. Health Rep.*, March 27, 1914) investigated the question of blindness in Cebu, Philippine Islands. In the twenty-three towns visited, with a population of 451,751, or a little more than half the population of the province, there are about 322 cases of blindness, and in the whole island about 600, of whom perhaps 200 might be made to see and become self-supporting. Of 145 cases examined by him, 50 were found to be suitable for surgical treatment with almost certain restoration of vision. They included cataracts with good light perception and pupil reaction, leukomas the result of keratitis, ophthalmia, pterygiums covering the pupil, cases of old iritis with occlusion of the pupil but with light perception, etc. The chief cause of blindness was found to be small-pox, 48 of the 145 cases found being due to this cause. Since the Americans have begun systematic and compulsory vaccination, small-pox is no longer a cause of blindness. There were 18 cases due to cataract, and 17 due to trachoma, which latter disease is the cause of about 18 per cent. of the blindness in Cebu. About 15 per cent. of the cases were due to causes not preventable, such as traumatism, etc.

# A COMPARISON OF THE ONSET AND CHARACTER OF THE APOPLEXY CAUSED BY CEREBRAL HEMORRHAGE AND BY VASCULAR OCCLUSION*

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## INTRODUCTION

The differentiation during life between spontaneous intracerebral hemorrhage and cerebral softening consequent on vascular occlusion is notoriously uncertain. Nevertheless, it is generally admitted, whether correctly or incorrectly, that the mode of onset and character of the apoplectic attack may be sufficient to determine the nature of the underlying lesion.

Thrombosis, like hemorrhage, is dependent on arteriosclerosis or syphilitic arteritis, though some cases of vascular occlusion can be ascribed to certain changes in the blood, as in pneumonia and typhoid fever. Without trauma healthy blood-vessels never rupture. This may account for the rarity of cerebral apoplexy in the lower animals. Dr. Herbert Fox, director of the pathologic laboratory at the Philadelphia Zoological Gardens, has informed me that he has never observed arteriosclerosis of the brain or its results—softening or hemorrhage—in a series of more than twenty-three hundred post-mortem examinations of a large variety of mammals, birds and reptiles.

Disturbance of consciousness is the most characteristic feature of apoplexy. Gowers[1] considered a patient to be unconscious or to have lost consciousness when there was no longer spontaneous evidence of mental action and none could be elicited by sensory stimulation. The exact mechanism concerned in producing this condition is not clearly understood; it is reasonably certain, however, that the preservation of consciousness depends on the proper regulation of intracranial pressure with an adequate supply of blood to the cerebral cortex.

It is believed that the intracerebral pressure may vary slightly under normal conditions, but according to Geigel[2] it must at all times equal the difference between the arterial pressure and the vascular tension, when the arterial pressure remains the same. An increase of vascular tension leads to diminution, and a cessation of vascular tension to increase of intracerebral tension. It is not the quantity of blood constantly present in the cranial cavity, but the quantity propelled in a given unit of time through the vessels of the brain, which determines the nutrition and proper function of the living cerebral substance. When intracerebral pressure increases, the veins and capillaries having very thin walls are necessarily compressed, thus a deficiency in the circulation of the brain is produced. Hence, even a decrease of arterial tension while the arterial pressure remains the same represents a causative factor in the production of the attack.

Anything which brings about a disturbance between the normal relationship of intracerebral pressure, arterial pressure and vascular tension, may cause an apoplectic attack; moreover, it is probable that the character of the attack can be directly influenced not only by the degree of disturbance, but also by the rapidity with which the normal neutralization of these forces is disarranged. Obviously, both hemorrhage and thrombosis can produce such disharmony in relationship and regulation of the forces concerned, although perhaps not in exactly the same manner; still the end-results may be similar.

Thomas,[3] in his article on apoplexy in Osler's "System" quotes von Monakow, who gives the following analysis of the various effects of hemorrhage into the brain: (1) the primary local destruction of the nervous tissue; (2) the edema in its neighborhood; (3) the decrease in the amount of blood in the vessels in the neighborhood of the clot; (4) the accompanying circulatory changes in the cortex; (5) the transmission of the mechanical shock caused by the sudden escape of blood into the brain in all directions throughout the intracranial cavity (this shock besides its physical action, is a physiologic stimulus to various parts of the brain; and especially, von Monakow thinks, it may stimulate the vasomotor centers and cause a reflex contraction of the cortical vessels); (6) increase in intracranial pressure; (7) interference with the circulation of the cerebrospinal fluid. Disturbance of consciousness, he believes, depends on a sudden cerebral anemia, and that this is brought about by some or all of the various factors enumerated above, but that probably the mechanical stimulation of the vasomotor centers is the most important.

All explanations of the real mechanical changes which do take place within the brain at the time of the initial onset of an apoplectic attack must be somewhat imperfect; still a proper theoretical conception of the various principles concerned is of great assistance in understanding the character of the clinical manifestations of the different conditions under discussion.

In order to ascertain to what extent differences in the character of an attack can be relied on for diagnostic purposes, seventy-two cases of cerebral hemorrhage and fifty of softening have been studied. In each case a post-mortem examination of the brain was made. In addition, the histories of more than three hundred non-fatal cases of hemiplegia were examined, in which an acute vascular lesion had undoubtedly been the initial source of paralysis, but only one hundred of these were found satisfactory for analysis. On account of the fact that so many patients suffering with apoplexy are not observed during the beginning of the attack, many being picked up on the street and brought to the hospital in an unconscious state, the difficulty of obtaining an accurate history is very great; therefore, a large number of cases had to be discarded, and only thirty-eight cases of hemorrhage and twenty-four of softening were made use of, for the accuracy of the statements obtained seemed to be beyond all possible doubt.

In order to facilitate comparisons, cases of hemorrhage and softening have been grouped according to *the rapidity with which consciousness was lost.*

## GROUP A, IN WHICH CONSCIOUSNESS WAS LOST SUDDENLY

This group comprises twenty-four cases of hemorrhage and eleven of softening, each of which began

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* From the Laboratory of Neuropathology at the University of Pennsylvania, Department of Medicine.

[1] Gowers: Text-Book, Diseases of the Nervous System, 1907, ii, 99.

[2] Geigel: Text-Book, Modern Clinical Medicine, Diseases of the Nervous System, 1908, p. 259.

[3] Thomas: Osler's Modern Medicine, vii, p. 382.

with sudden profound loss of consciousness. These patients were variously occupied pursuing their daily vocations, and were instantaneously struck down totally oblivious of their surroundings. Premonitory symptoms were not recorded. Vomiting occurred early in two cases of hemorrhage, but was absent in each of eleven cases of softening. Violent general convulsions were observed in three cases of hemorrhage and in three of softening. In two of the former cases blood had filled both lateral ventricles, and the convulsions were not only severe, but rapidly repeated until death occurred. In one case of hemorrhage, severe but infrequent convulsions were noted, and the lateral ventricles were not filled with blood; in seven cases the lateral ventricles were filled with blood, yet convulsions did not occur. In two of the cases of softening in which convulsions took place, the basal ganglia alone were affected; but in another case of softening the lesion was confined to the cortex, yet the patient had violent bilateral general convulsions. In every case of this group, whether with hemorrhage or vascular occlusion, the loss of consciousness was equally profound, and except for momentary remissions it was not regained. Hemiplegia was invariably present. In twenty-three of the twenty-five cases the hemorrhage was situated in the region of the basal ganglia and internal capsule, and in nine the lateral ventricles were filled with blood. Only one hemorrhage was small, measuring 5 by 2.5 cm. This was situated directly under the cortex of the right temporal lobe. Each one of the softenings belonging to this group were found in the region of the basal ganglia and internal capsule. Nine were extensive, while only two were small, measuring from 3 to 4 cm. in diameter. In each case thrombosis has been the cause.

The duration of life varied considerably. Only four patients with hemorrhage lived less than one day, one died in six hours, and one survived twenty-one days; but in this latter case the hemorrhage was small and close to the temporal cortex of the right side and death may have been hastened by erysipelas. Of the patients with softening, one died after twelve hours and one lived sixteen days, the average being four days. These results seem to be in accordance with Spiller's[4] observations.

### GROUP B, IN WHICH CONSCIOUSNESS WAS NOT LOST SUDDENLY

The second group includes those cases in which the initial disturbance of consciousness was rather mild and then gradually increased till in about ten or fifteen minutes or longer the stage of coma was reached. Partial recovery frequently occurred for short periods of time. There were eleven hemorrhages and only three softenings with this type of onset. Premonitions were recorded in each case of the softenings as well as in five of the eleven hemorrhages. Vomiting occurred only once and then with hemorrhage. General convulsions did not occur in any case, whether of hemorrhage or softening, but in one case of hemorrhage convulsive movements of the upper extremities preceded impairment of consciousness by a few minutes. In every case hemiplegia was present. Twice hemorrhage originated from a cortical vessel, and a large mass of blood was found covering much of the cerebral cortex. As in the preceding group, hemorrhage occurred in the region of the internal capsule and basal ganglia nine times, but the hemorrhages differed from those of the former group in that they were smaller and more localized and blood had not filled the lateral ventricles. Only two were really small, however, one measuring 2 by 2 cm. situated within the lenticular nucleus and implicating about 1 cm. of the internal capsule, and one 3.5 by 3.5 cm., within the frontal lobe near the cortex.

Of the softenings, three had been very gradual in onset. Hemiplegia and aphasia were established slowly, requiring some days previous to the impairment of consciousness. In these cases the left sylvian artery has been occluded and a large part of the cerebral cortex on the left side was destroyed, including the motor convolution, temporal convolution and parietal lobe. There were three cases of hemorrhage in which motor weakness preceded disturbances of consciousness, but only by a few minutes and not by hours or days, as in some softenings.

The *average duration of life was six days in this* group of hemorrhages; one patient lived eleven days and one died in three days. Unlike those of the previous group, none died during the first twenty-four hours. Each of the three patients in whom extensive softening had occurred lived for five days after consciousness was lost, but motor weakness had preceded the attack by some time, exactly how long could not be determined, still at least four days in one instance. In four cases of softening consciousness had not been disturbed in the least; but each of these had been caused by an embolus of the middle cerebral artery during an acute disease; a large part of the central portion of one hemisphere was destroyed, including all the basal ganglia and part of the temporal lobes. Two patients lived more than a month, and death was probably caused by cardiac failure and not by the cerebral lesion. In one instance of hemorrhage confined to the pons, consciousness was not impaired until the fifth day after paralysis had occurred, and even then it was not lost until a few hours before death.

### HEMIPLEGIA

For the purpose of comparison one hundred cases of hemiplegia have been studied. All of these patients were seen at the Orthopaedic Hospital and Infirmary for Nervous Diseases, and were believed to have had an acute vascular lesion of the brain, that is, thrombosis, embolism or hemorrhage. The period of time which had elapsed after the original apoplectic attack and time of the physical examination varied considerably; the average, however, was five or six months.

Thirty-two of these patients complained of various degrees of ill health preceding the date of the onset of apoplexy; headache was described in nine cases, and syphilis was evident in thirteen. The attack began during the course of an acute illness seven times. In only three cases were there more or less definite sensations of numbness and tingling with some pain and discomfort spoken of as occurring on the side of the body which shortly became paralyzed.

In fifty-two cases consciousness was said not to have been disturbed even in the slightest degree, but these patients did complain of various sensations, such as headache, vertigo, weakness, nausea, faintness, etc., which are too indefinite to be classified, but which might be collectively considered as the "apoplectic equivalent." Hemiplegia developed during sleep in twelve cases.

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[4] Spiller: Univ. of Penn. Med. Bull., October, 1906.

Consciousness was lost suddenly before any signs of paralysis were noticed in seventeen cases, but in five cases paralytic signs developed first and were then followed by a sudden loss of consciousness. Slow progressively increasing loss of consciousness was rare, occurring only three times, twice preceding any sign of weakness, while in the one case definite impairment of function was the first indication of disease.

Convulsive movements preceded paralysis by some hours in two cases, but general convulsions were not recorded. Aphasia was recorded in nine cases.

The character of the paralysis in every case was the ordinary type of hemiplegia or hemiparesis, with increased tendon reflexes. Sensation was impaired in eight cases, and the face entirely escaped four times.

Many writers have formed the habit of describing premonitory symptoms, which are of value in differentiating hemorrhage, thrombosis and embolism. On purely theoretical grounds it is almost inconceivable that a miliary aneurysm or an arteriosclerotic vessel within the brain in the act of bursting can give rise to symptoms which could be separated from and not confused with the various phenomena of the early stage of the rapidly oncoming apoplectic state. On the other hand, there undoubtedly exist many cases of vascular occlusion in which the lumen of the vessel is cut off gradually, causing thereby gradual impairment of function of that part of the brain nourished by the vessel affected. Chiefly on this ground the statement is often made that premonitory symptoms are absent in cases of hemorrhage and frequently present in cases of thrombotic softening.

Arteriosclerosis or syphilitic arteritis is the common forerunner of most cases of apoplexy. Patients so affected frequently complain of various sensations referable to cerebral disease—headache, vertigo, numbness and tingling of one or more extremities, and a variety of subjective disturbances. These are the symptoms so frequently referred to as premonitions immediately preceding an attack. It must be remembered that when an apoplectic attack begins, the loss of consciousness may develop gradually or suddenly. In the latter case, the starting-point of the attack is unmistakable; but, whenever consciousness is lost very gradually, many symptoms may develop which are in reality caused by the acute vascular lesion, and are indeed actually nothing more than the first and earliest manifestations of a gradual transition from the conscious to the unconscious state. Many apoplexies begin with vertigo, headache, confusion or disorientation, which phenomena may more or less rapidly progress till the grade of profound coma is reached. Taking this point of view, it is evident that symptoms of chronic vascular disease of the brain or arteriosclerosis cannot be distinguished clinically from the earliest symptoms of some cases of apoplexy regardless of the nature of the lesion causing it. This fact is only too well illustrated when it is remembered that some arteriosclerotic patients suffer from apoplectiform attacks which are not associated with cerebral softening or hemorrhages, and which differ only in degree and not in the essential characteristics of the attack itself from true apoplexy.

From what has been said, the so-called premonitions should be more frequently observed whenever consciousness is disturbed at first slowly and therefore incompletely, and less frequently when it is disturbed suddenly and severely.

Many years ago it was said by Trousseau (quoted by Thomas,[3]) that sudden loss of consciousness is rarely if ever the initial symptom of apoplexy. But physicians seldom have the opportunity of observing the beginning of an attack, so that much judgment is required in interpreting the descriptions given by the patient or friends. I was once present where an elderly lady was quietly sitting at the dinner table carrying on an animated conversation—curiously enough, with two physicians—when suddenly she dropped knife and fork from her grasp and fell backward in her chair totally unconscious; some hours later she was dead. If premonitions had been present, they would surely have been noticed.

Of the thirty-eight cases of hemorrhage which have been studied here, premonitory symptoms of short duration were recorded five times. In one there had been a feeling of excitement and apprehension lasting fifteen minutes, accompanied by convulsive movements of both arms. Numbness and tingling of all four extremities and headache occurred once; general restlessness and excitement were present once; while in two instances there was a feeling of intense general weakness. In each case these symptoms were the first symptoms of cerebral hemorrhage, and were recognized only because consciousness was lost gradually. In one case of softening the patient complained of numbness of one side, and three developed motor weakness before the attack; in each consciousness was gradually lost.

## RELATION OF THE SIZE OF THE LESION TO SEVERITY OF ATTACK

As already mentioned, the hemorrhages of the first group, with only one exception, were large, and in all the initial apoplexy was sudden and severe. Those of the second group were smaller, though only two were really small; the smallest of all measured 2 by 2 cm. In these apoplexy was less abrupt than in the former group. Naturally hemorrhages may vary greatly in size. Cases have been observed in which nearly all of one hemisphere and part of the other have been destroyed, and many are seen as small as an English walnut. Small hemorrhages, however, are exceedingly uncommon—that is to say, those as small as a pea. Attention has been called to this fact by von Monakow.[5] The cases studied here would indicate that large hemorrhages are most common and also that the sudden severe types of apoplexy usually result. I know of no instance in which a large spontaneous hemorrhage within the brain did not produce loss of consciousness, though the initial onset may not have been sudden. Even a moderately small hemorrhage may cause a severe and sudden attack, as in one case recorded in the first group. It seems correct to conclude that the size and rapidity of growth of the hemorrhage may have a very decided influence on the severity of the initial apoplexy. No doubt Gowers'[6] statement that "the intensity of apoplexy is a graver indication than its duration" can be explained on those grounds, for the duration of life is apt to be longer when hemorrhage is small. The cases of my first group seem to corroborate this statement. Of softening from thrombosis or embolism, in a measure the same statements are true, but not so regularly.

Fairly large softenings are occasionally found at necropsy which had not caused very distinct apoplexy during life. Indeed, there are four cases already referred to in which the middle cerebral artery had been occluded, two by embolism, during the course of an acute endocarditis, and twice by thrombosis during pneumonia. In each a large portion of the basal ganglia and adjoining structures were destroyed, yet a very indistinct apoplectic attack was observed during life. The smallest hemorrhage of which I have knowledge is shown in the photograph given here. It occurred in a patient in the service of Dr. Charles K. Mills at the Philadelphia Hospital, and the specimen is in Dr. Spiller's laboratory. Unfortunately the history of this case is incomplete, but it is probable that there had not been a very distinct apoplectic attack, consciousness was not disturbed early. On the other hand, there were two softenings recorded in the first group measuring only from 3 to 4 cm. in diameter, with distinct apoplexy. Again Gowers[7] has said, "of lesions of equal size the more sudden the obstruction the more pronounced the attack." I would accept the statement as correct in the majority of instances, and would further enlarge on it by adding that the more gradually vascular occlusion is produced the less pronounced the attack or the more gradual the onset. This is well illustrated by the cases mentioned in the second group, in which the sylvian artery had become thrombosed; in each of these cases there had been a very gradual and progressive development of paralytic symptoms with little disturbance of consciousness. Spiller[8] has called attention to this type of case in distinction to the gradually increasing hemiplegia of cerebral tumor. In this connection it should be remembered that when a vessel is suddenly occluded, apoplexy may immediately result, together with paralysis, but actual softening of the brain requires at least a day to develop after occlusion takes place. I have been able to prove this to my own satisfaction by experiments on dogs.

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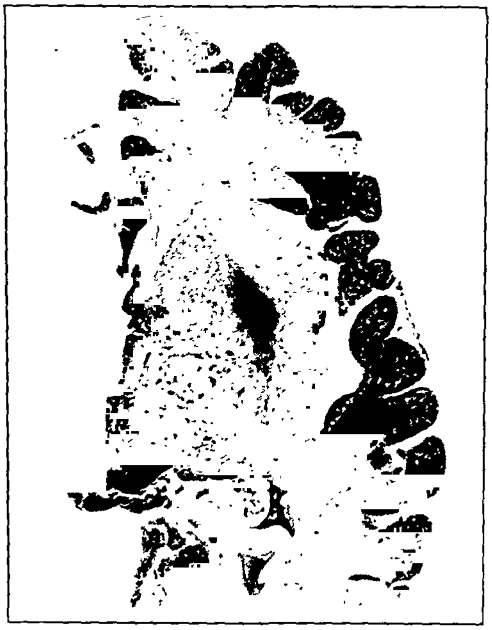
[5] Von Monakow: Gehirnpathologie, 1897, p. 97.
[6] Gowers: Text-Book of Nervous Diseases, 1907, ii, 443.



Very small intracerebral hemorrhage which caused death.

It is difficult to explain the very sudden loss of consciousness that occurs in some cases of cerebral softening; a rapid onset, however, suggests that the affected vessel is occluded suddenly. Cases of so-called angiosclerosis which have been carefully studied with the ophthalmoscope seem to furnish considerable evidence to strengthen the belief that cerebral vessels may be affected like the arteries of the retinae, which become instantaneously and permanently occluded. In some instances the retinal vessels have been watched while being occluded.

This subject has been recently discussed by Taylor, Werner and Coates.[9]

Assuming that coma when caused by hemorrhage was due entirely to increased intracranial pressure, Cushing[3] (quoted by Thomas) proposed opening the cranium and evacuating the clot. There can be no doubt, that when hemorrhage is fairly large, the intracerebral pressure is greatly increased and that this is one of the most important factors producing coma and death, for it is not uncommon to find at necropsy that the hemisphere in which hemorrhage has occurred is distended and larger than the opposite or sound side. In a recent communication Marie[10] stated that coma is due much less to the sudden eruption of a large mass of blood into the affected hemisphere than to the compression of the brain caused by the presence of this quantity of blood. The sudden eruption of the blood produces ictus, which is a transitory phenomenon; the compression of the brain produces coma, which is a persistent phenomenon; but a deep and lasting coma is not produced unless the opposite hemisphere is compressed also. He was able to demonstrate that hemorrhages measuring as much as from 5 or 6 cm. by 3 or 4 cm. did not produce coma unless there was compression of the opposite side. When the unaffected hemisphere was compressed, the coma was profound and absolute. As a result of these observations, Marie advocates trephining on the sound side in order to relieve pressure. In four instances his results were good, but he does not give histories of his cases.

Marie's views would seem to be logical. In certain cases operation might be beneficial, for without operation death cannot be prevented.

## CONCLUSIONS

It is thoroughly appreciated that "generalizations may be dangerous," for exceptions always occur. Nevertheless, the following conclusions would seem to be warranted:

Spontaneous intracerebral hemorrhages are apt to be large; very small hemorrhages are rare. Of seventy-two specimens examined, only four measured less than 4 cm. in their broadest diameter.

It is certain that large hemorrhages are always fatal, and it is also certain that small hemorrhages may be fatal, and it even seems probable that hemorrhages are always fatal, no matter whether small or large.

When repeated attacks of apoplexy with hemiplegia occur in the same patient at different times, the final or fatal attack may be due either to softening or to hemorrhage, but the former non-fatal attack is invariably caused by vascular obstruction and softening and not by hemorrhage. Repeated attacks of intracerebral hemorrhage are not compatible with life.

Small and moderate-sized lesions within the brain, generally described as cysts, are apt to be considered the result of vascular occlusion; but in some instances such lesions may be produced by hemorrhage which has become healed. Their true origin in some cases seems uncertain, but they have been classified here as softenings.

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[7] Gowers: Text-Book of Nervous Diseases, 197, ii, 432.

[8] Spiller, William G.: Brain Tumor, The Journal A. M. A., Dec. 18, 1909, p. 2078.

[9] Taylor, Werner and Coates: Tr. Ophth. Soc. U. Kingdom, 1913, xxxiii, pp. 1, 9, 30.

[10] Marie: Bull. d. l'Acad. de méd., Paris, Nov. 18, 1913, p. 405.

The duration of life is generally longer with small hemorrhages than with large ones. Sudden death within a few minutes after the onset of apoplexy does not occur even though the lesion is a large one. It is remarkable that fairly large hemorrhages may not in all instances cause rapid death. Spiller[6] has recorded a case in which a clot was found partly encapsulated and measured 7 by 2.5 cm., yet the patient lived almost two months.

The type of apoplexy produced by hemorrhage and by vascular obstruction is not of a distinctive kind. The onset and character of the apoplexy may be exactly alike, though the lesion is entirely different. But a sudden onset with rapidly developing and persistent coma usually indicates hemorrhage. A slow onset with premonitory symptoms without profound coma may be due to hemorrhage or to softening, but the less severe the disturbance of consciousness the more likely that it is caused by softening and not by hemorrhage.

Premonitory symptoms are not characteristic of the lesion; as a general rule they are recorded in the milder types of apoplexy in which the onset is not abrupt.

Slowly increasing loss of consciousness ending in profound coma, known as ingravescent apoplexy, is generally due to hemorrhage.

It is doubtful if hemorrhage ever occurs without causing very distinct disturbances of consciousness, but it is certain that many softenings do occur without producing distinct apoplectic attacks. Most non-fatal cases of hemiplegia are caused by vascular occlusion and subsequent softening. The mere fact that life is preserved is in itself indicative of the absence of hemorrhage.

The type of apoplexy probably depends more on the size of the hemorrhage than its situation, but with softening the rapidity with which the vessel is occluded may influence the rapidity of onset of the attack as well as the extent of the lesion.

I am indebted to Dr. Allen Smith for the photograph and I also wish to express my thanks to Dr. Spiller, who very kindly allowed me to use the specimens in his laboratory, and to Dr. Warfield T. Longcope for the material obtained in the Ayer Clinical Laboratory of the Pennsylvania Hospital, and also to the Medical Staff of the Orthopaedic Hospital and Infirmary for Nervous Diseases for the use of the records of cases examined in their service.

1710 Locust Street.

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**The Use of Vaccines.**—We must ever keep in mind, in considering the value to be derived from the use of vaccines and antitoxins, that we have to deal in each case with at least two forms of life. We shall do well to keep constantly and intently before us that each of these living agencies possesses more or less limited biologic characteristics which are in large part peculiar to its own particular kind, and are even at times exceedingly individual in character. Expressing this idea more concretely, we say that a human being possesses degrees of susceptibility and immunity to the microscopic invaders, while we say that the attacking microbic army possesses saprophytic, parasitic or pathogenic properties, according as we merely live happily in their company, simply tolerate their society, or actually succumb, in varying degree, to their attacks on us.—H. D. Pease.

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# TECHNIC FOR ARTHROPLASTY OF THE SHOULDER-JOINT

W. L. BROWN, M.D.
AND
C. P. BROWN, M.D.
EL PASO, TEX.

With our limited access to the literature we have been unable to find any satisfactory description for an arthroplasty of the shoulder-joint. Having a case for operation, we began the work on the cadaver and developed the following technic, which we believe is nearest anatomically correct of anything we have been able to find.

In this operation we have utilized a portion of the short head of the biceps for a flap to interpose, because it is covered by more dense tendinous sheath than any other structure in the neighborhood of the shoulder-joint, is correctly located anatomically and we believe in the majority of cases will furnish sufficient fascia and muscle to make a flap of necessary dimensions. The flap obtained is quite sufficient to line the glenoid fossa and cover the entire head of the humerus.

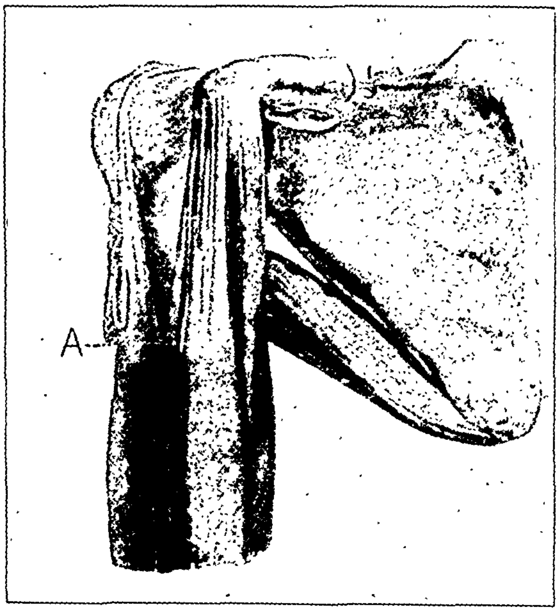

Fig. 1.—Broad, tendinous, short head of biceps (*A*); from Cunningham's Anatomy.

In our clinical case there was considerable enlargement of the head of the humerus, and it would have been necessary either to reduce it in size or to obtain an additional flap for interposition. We obtained the additional flap by taking off a strip from the under side of the reflected deltoid sufficient to fill out the small amount which we lacked in our biceps flap. Use of the pectoralis major for an interposing flap is impracticable, owing to the distance of its attachment from the joint and to the presence of other anatomic structures between it and the joint. In addition to this the sheath of the pectoralis major is very delicate and there is but little fat on its anterior surface. There is no fat on the under surface of the deltoid, and its sheath is also very thin and delicate. The opposite is true of the short head of the biceps.

In addition to this, the attachment of the inner head of the biceps is to the coracoid process, which gives it a pedicle in exactly the right location.

A reversed letter S incision is made, beginning at the junction of the middle and outer third of the clavicle, passing outward half-way between the coracoid and acromion process, then inclining forward and downward to the vertical line of the inner side of the arm, and then downward and backward to a point 4½ inches directly below the acromion process. This incision gives an abundance of exposure, and just to the inner side of the wound will be observed the sulcus between the pectoralis major and the deltoid. These muscle-fibers should be separated, coming down directly on the tendinous attachment of the inner head of the biceps.

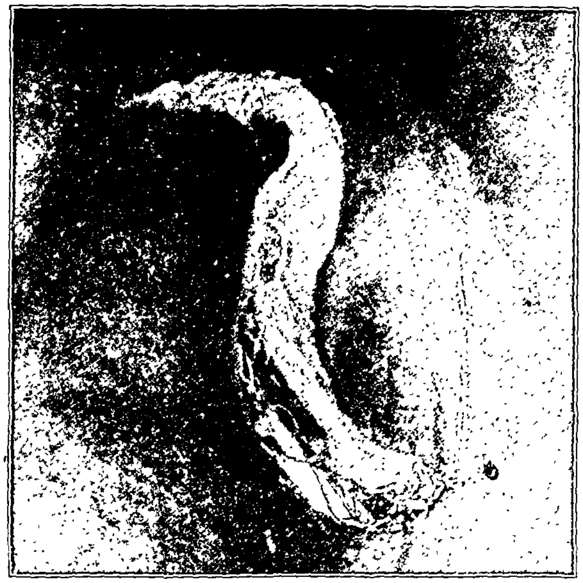

Fig. 2.—Reversed S incision beginning at junction of middle and outer third clavicle, passing outward half-way between coracoid and acromion processes, then downward and inward to vertical line, inner side of arm, curving outward to point 4½ inches directly below acromion process.

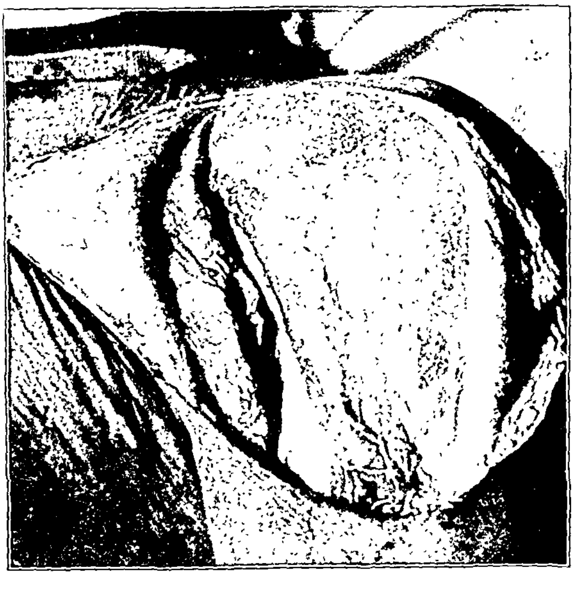

Fig. 3.—Skin flaps reflected, showing separation of muscle fibers in sulcus between deltoid and pectoralis major, exposing short head of biceps in lower angle of wound.

To expose the field properly, the tendon of the pectoralis major should be transfixed with a linen thread, and then cut loose from the humerus; the attachment of the inner fibers of the deltoid is transfixed and severed from the humerus, which will facilitate its retraction, making a complete exposure of the joint-capsule and inner head of the biceps. The forefinger of the left hand is passed beneath the inner head of the biceps, separating it from the coracobrachialis, and then its sheath and fibers are cut across 4½ inches below its attachment at the glenoid cavity, it being necessary to take about half the muscle, giving a fan-shaped flap 4½ inches long by 3½ inches wide at its distal extremity.

The capsule of the joint is then opened, and the head of the humerus separated from the glenoid fossa, the long head of the biceps being preserved if possible. If the capsule is much thickened and adherent, the long head of the biceps is liable to be lost in this mass. Therefore it is much more convenient to disregard it, cutting it across as the capsule is opened. Even in a normal shoulder-joint it is difficult to dislocate the head of the humerus with the long head of the biceps in place; when not adherent or lost in the thickened capsule it may be retracted to the inner side, allowing the head to be dislocated. Enough of the capsule is severed to mobilize the joint completely; three No. 1 chromicized catgut sutures are attached, one to each corner and one to the center of the flap, and the forefinger of the left hand is passed into the joint to the distal extremities of the capsule attachment to the humerus in such locations as will be found necessary to bring the flap into proper position. A very large curved needle is threaded on each of the guy-ropes, guided by the finger pushed through the capsule, soft tissues and skin to the surface, and then used to pull the flap into place, and when tied externally, to anchor it there securely. Two or three additional catgut sutures will be found neces-

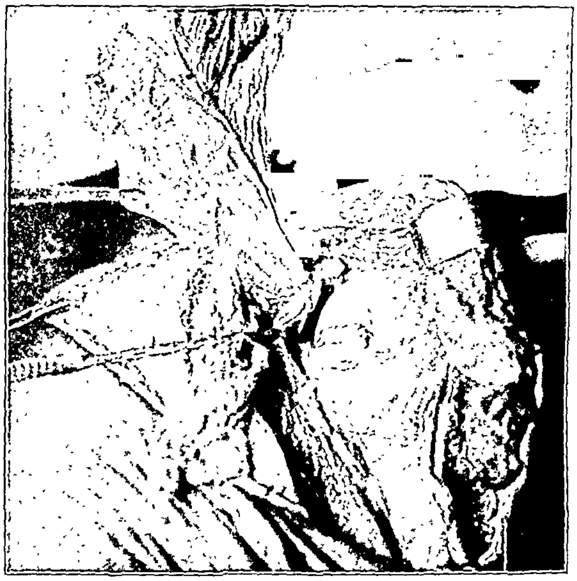

Fig. 4.—Pectoralis major tendon transfixed, cut from humerus, part of attachment of deltoid transfixed, cut and reflected, flap raised from short head biceps, to origin at coracoid process, capsule opened and long head of biceps displaced inward.

sary at other points to hold the flap in proper position, making a complete lining for the cavity. If the long head of the biceps has been displaced, it should now be replaced and the sheath closed over it in the bicipital groove. If it was lost in the thickened capsule and severed, the capsule at this point should be securely sutured. If the capsule seems to be sufficiently free to allow good motion in the joint, it should be sutured; otherwise it is better to leave it unsutured except at the long head of the biceps, than greatly to restrict the arc of motion. If the pectoralis major was so contracted that it would interfere with the motion of the joint it should not be reattached to the humerus, unless it was thought best to do some plastic operation to lengthen it. The part of the deltoid severed should be carefully reattached to the humerus; the arm put in a cast at right angles to the body, including the chest, with the forearm flexed if the long head of the biceps has been severed. The cast should be removed in ten days, the sutures removed and gentle passive motion begun.

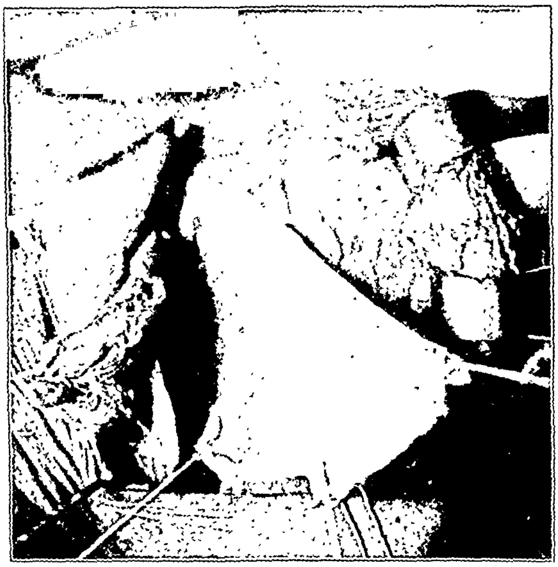

Fig. 5.—Smooth, dense, fan-shaped fascia over anterior surface flap, or insert, this measuring 4½ inches long and 3½ inches wide at extremity, and ¾ inch wide at glenoid cavity, with the three threads attached to draw it into place.

### REPORT OF CASE

J. W., aged 44, German, carpenter, who had had only the sicknesses of childhood, and who denied all venereal disease, in November, 1912, was working in a cold basement and took "cold." This was followed by a chill, and six or seven days later he began to have a swelling in the region of the right shoulder. This was very painful and extended down the upper arm to the elbow. Pus formed, and a large quantity was evacuated through an opening just above the elbow. Three days after the evacuation of this pus, an abscess had to be opened on the inner side of the right leg just above the ankle. After a tedious convalescence both of these openings healed, and the shoulder-joint was never incised. After the recovery, however, the patient found that he had very imperfect use of the right shoulder and considerable atrophy of the shoulder muscles, particularly the deltoid.

In June, 1913, six months after the onset of the trouble, he was anesthetized and the friable adhesions in the shoulder-joint were broken and extension was put on the arm at right angles to the body. After a few days passive motion was begun and the extension was kept on for ten days. Owing, however, to the irregular attendance of the patient and his inability to stand the necessary pain, the adhesions reformed, and when he returned six months later he had bony ankylosis in the shoulder. The arm was carried by the side, the deltoid muscle was greatly atrophied, the pectoralis major contracted and he was unable to follow his trade as a carpenter.

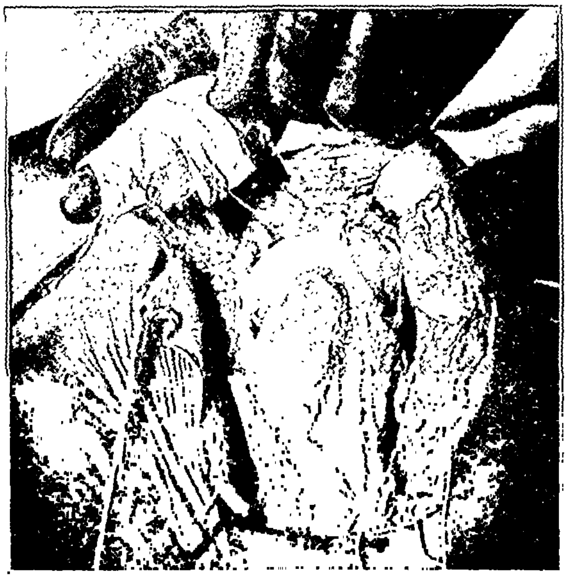

Fig. 6.—Guy-ropes of catgut have been passed through suitable locations at junction of capsule and neck of humerus, through the muscle and skin posteriorly, ready to draw flap into place and act as anchor sutures to hold it there, when tied externally.

Jan. 13, 1914, arthroplasty was performed according to the foregoing technic, except that the head of the humerus was considerably enlarged and a few muscle-fibers were turned in from the under side of the deltoid to make the biceps insert large enough to cover completely. At operation there was found to be considerable bony deposit in the lower fourth of the capsule, so that it was impossible to pass the needles through it with anchor sutures, and they had to be passed on each side of it.

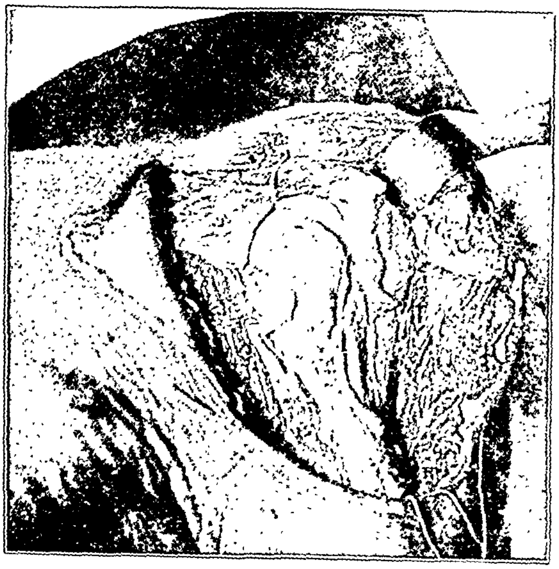

Fig. 7.—Flap in place with two anchor sutures to capsule; other three at extremity of flap do not show.

At the time of operation the tendon of the pectoralis major was not reattached because of its contraction. The wound was dressed in carbolized gauze, the arm at right angles to the body enveloped in a cast with the forearm at right angles to the arm.

The best roentgenograms which we were able to secure were not satisfactory. They showed the bony deposit in the lower part of the capsule, however, and absence of the joint cavity.

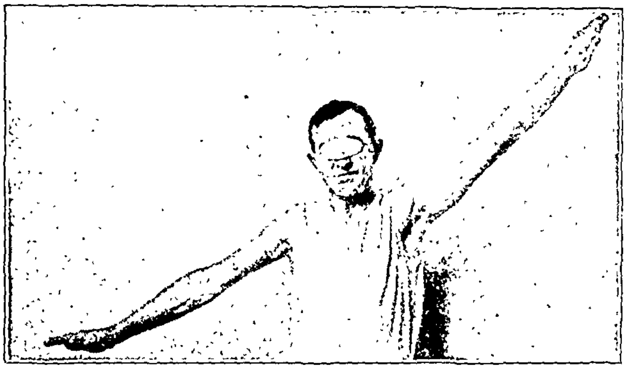

Fig. 8.—Patient before operation. Owing to atrophy of the upper-arm muscle, it was only by extreme effort that he was able to bring the hand to the level of the waist. No joint motion; scapular motion entirely.

Six weeks after the operation he is again at work at his trade as carpenter, with perfect motion in his shoulder but some restriction of the arc because of periarticular contractions, contraction in the lower part of the capsule and atrophy of the deltoid muscle. The muscle is developing rapidly and the arc of motion is also increasing rapidly, and he can do all kinds of work now, except overhead.

Fig. 9.—Six weeks following operation, showing considerable improvement in muscles; the arm can now be brought almost to right angle. The patient can comb his hair and do all his work as a carpenter, except overhead work. Motion is restricted only by a periarticular contraction, which is rapidly improving.

There has been entire absence of pain since the first day or two following the operation, and even then the patient never required morphin.

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# THE EFFECT OF INJECTING COLLARGOL INTO THE RENAL PELVIS

PRELIMINARY NOTE *

DANIEL N. EISENDRATH, A.B., M.D.
CHICAGO

Ever since the introduction, by Voelcker in 1906, of a method of injecting solutions into the renal pelvis for roentgenographic purposes, the question whether or not such substances damage the kidneys or other organs has been actively discussed. During the past few years a number of deaths have occurred within a short time after the injection of collargol into the renal pelvis, and these fatalities have aroused even greater interest in the method. Assisted by Dr. E. W. Schnoor, I have made an experimental study of the effect of the injection of collargol solutions into the kidneys of dogs and shall report our results in detail at the Atlantic City Session of the American Medical Association in June. We have imitated the conditions as found in the human being more closely than any previous investigators, and in addition have been the first to study the effect of injecting solutions under varying degrees of pressure, as measured by the manometer. For the purpose of placing on record at this time the results obtained in two experiments in which death was due to collargol, we deemed it advisable to make this preliminary report.

In Experiment 304, from which the sections shown in Figures 1, 2 and 3 were taken, a dog's right renal pelvis was injected with 20 c.c. of a 10 per cent. solution of collargol under a pressure of 100 mm. Hg. Our work has taught us that the normal capacity of the dog's renal pelvis is 2.5 c.c. and that as long as only moderate pressure is employed, up to 50 mm. Hg, for instance, and the normal capacity not greatly exceeded, no harm results. The animal in this experiment died within five minutes after the injection of a quantity eight times the capacity of its renal pelvis and under doubly as much pressure as it is safe to employ when the quantity used is even equal to the capacity of the renal pelvis. Necropsy was performed immediately, and showed large quantities of collargol in the inferior vena cava, and the right auricle and ventricle. There was a smaller amount of collargol in the left side of the heart. The lobes of both lungs were uniformly black and showed microscopically the condition shown in the photomicrograph (Fig. 3). Almost every interalveolar capillary and the blood-vessels accompanying the bronchioles were filled with collargol. The liver showed many raised areas on its surface, which were seen microscopically to be due to masses of collargol (Fig. 2), and the silver salt could also be seen in the blood-vessels of the liver acini. The nodules on the liver were due to these collargol infarcts or deposits (Fig. 2). The spleen and gastric

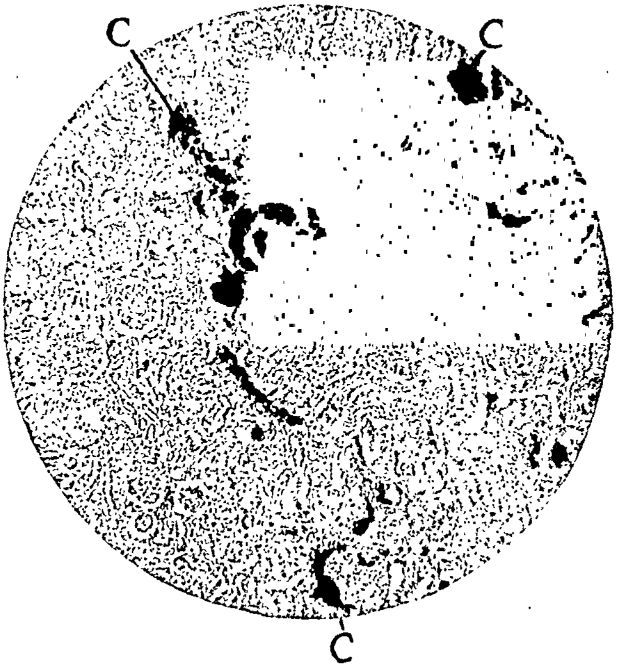

Fig. 1.—Section of kidney from Experiment 304 showing how collargol (*C*) is forced into intertubular connective-tissue spaces of medulla; 20 c.c. collargol injected under 100 mm. Hg pressure.

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* From an experimental study of the question at the Morris Institute for Medical Research of the Michael Reese Hospital.

mucosa showed many hemorrhagic areas and deposits of collargol. The kidney (Fig. 3) showed the typical appearance described by Wossidlo, Smith and others. The collargol had forced its way into cavities artificially formed in the interstitial connective tissue, and in places one could see the collargol just outside of the vessels, separated from the lumen by the endothelium alone. We are at present examining serial sections in order to find a place of actual rupture of a collargol deposit into the vessel lumen.

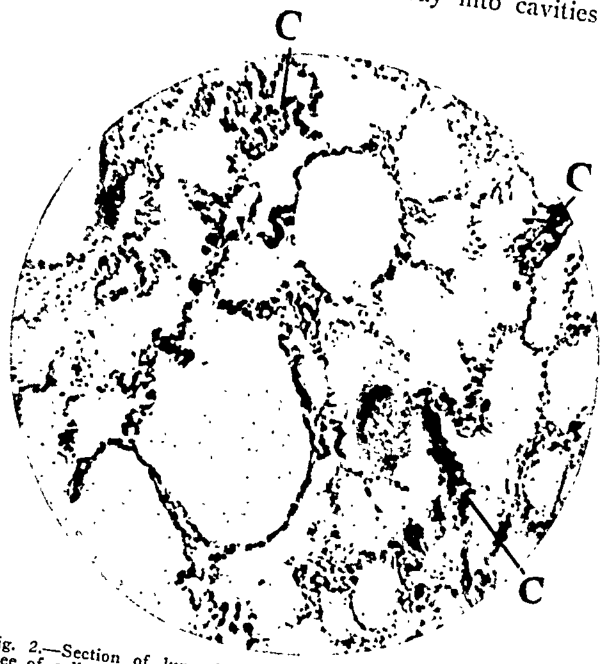

Fig. 2.—Section of lung from Experiment 304, showing advanced degree of collargol embolism. Note how almost every capillary in the septa between the alveoli is filled with the collargol (*C*). Animal died five minutes after injection of 20 c.c. collargol under 100 mm. pressure.

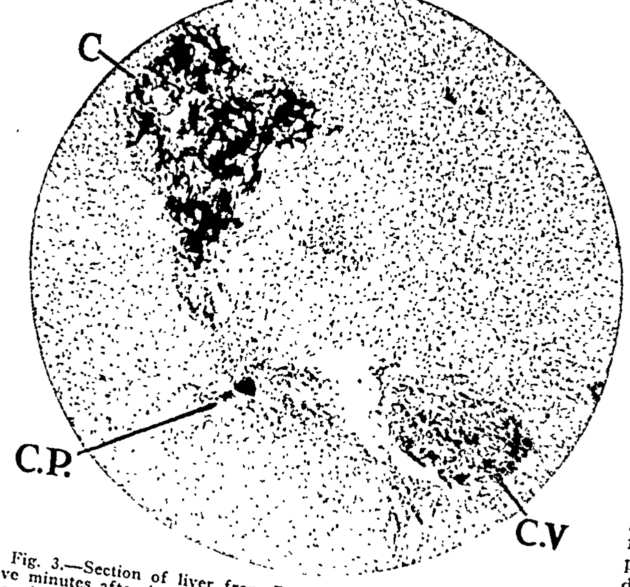

Fig. 3.—Section of liver from Experiment 304 in which animal died five minutes after injection of 20 c.c. of a 10 per cent. collargol solution into pelvis of right kidney (Fig. 1) under 100 mm. Hg pressure. Note collargol infarct at *C*, and also the collargol in a vessel (interacinous) at *C. V.* and the collargol at *C. P.* in the interacinous septum.

In a second experiment (310), 30 c.c. of a 10 per cent. solution of collargol were injected into the renal pelvis through a ureteral catheter introduced through the vesical orifice of the ureter, while the bladder was held open as in Experiment 304. The pressure employed was 100 mm. Hg, the same as in Experiment 304. In spite of the large amount injected (30 c.c.) and the high pressure (100 mm.), the greater part of the collargol escaped into the tissues around the renal pelvis. The animal died thirty minutes after the injection. The lungs (Fig. 4), liver, spleen and kidneys showed deposits of collargol in the blood-vessels and interstitial connective tissue as in the other experiment but in far smaller amount, because only a small amount of the collargol entered the systemic circulation through the renal veins. We have seen death result in two animals from extensive and widely distributed collargol embolism, and believe that these experiments offer for the first time a logical explanation of the deaths observed in the human being. We shall postpone further discussion of the subject until the paper is presented in full.

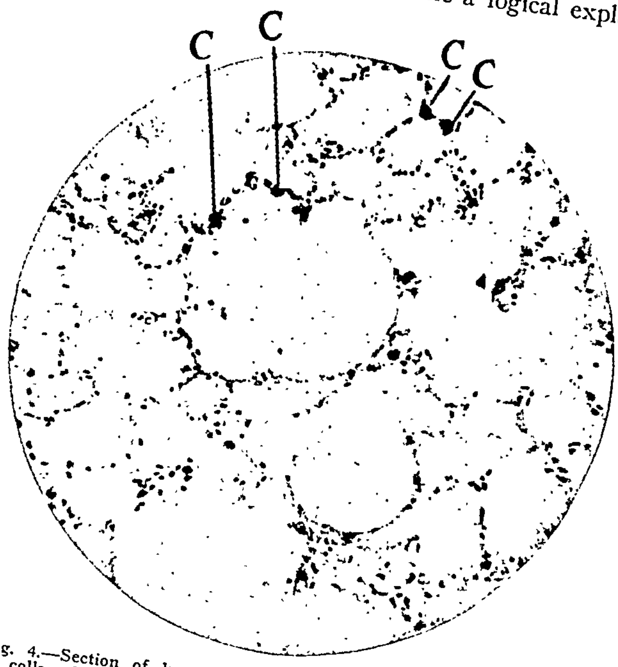

Fig. 4.—Section of lung from Experiment 310; 30 c.c. of 10 per cent. collargol injected into right renal pelvis under 100 mm. pressure. Most of collargol escaped into connective tissue around renal pelvis. But little collargol entered systemic circulation and lung shows minimal degree of collargol embolism of pulmonary capillaries at *C*.

31 North State Street.

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**Constructive Medicine and Good Housing.**—We have done great things, and in the doing of them have created a new profession, that of preventive medicine. Since the days when the physician was content to cure those already sick to these days when the physician, whatever his technical titles, labors to keep men from becoming sick, we have advanced far. But perhaps the time has now come when we must create another profession, that of "constructive medicine." Its field may be even larger than the field of preventive medicine, the multitude of its practitioners divided into a greater number of groups than those who now guard our food, our water, our air and our neighbors from infection and contagion. And one of its tasks will be to see that our houses are adapted to serve as family homes. For that is what good housing means. —John Ihlder, *Amer. Jour. Pub. Health.*

# ARGYRISM FOLLOWING THE USE OF COLLARGOL

ANTONIO M. CRISPIN, M.D.
NEW YORK

Since argyrism is a rare condition, a report of the following case, which came under my observation recently, may be of interest. We do not see the baneful effect of chronic silver poisoning, as did our forefathers, because we do not employ this metal internally so often as they did. There is nevertheless a danger to argyrism resulting from the prolonged use of the colloidal preparations of silver now in vogue, especially since the manufacturing houses advertise widely that these preparations are innocuous and vaunt their virtue to the skies.

The patient was a young woman sent to me by her physician, with the request that she be operated on. In his letter he said that she had been suffering for years from gastro-intestinal troubles, which he attributed to gall-bladder obstruction. The most noticeable thing about the patient was her complexion, which had a dark bluish hue, with bright glistening eyes, compelling the wonder and admiration of all who beheld her. To the medical man it suggested a congenital heart lesion or intense cyanosis. This chromatic effect was a source of constant worry and anguish to this otherwise pretty girl. Sunlight seemed to increase the darkness of her color.

Examination of the chest revealed a perfectly normal heart and lungs. The abdomen presented a slight tenderness over McBurney's point, and slight rigidity of the right rectus muscle. The most careful search failed to show anything abnormal with the hepatic function, nothing in fact to account for the blueness or supposed jaundice. By interrogation it was elicited that for four years she had taken collargol internally under her physician's advice, and that after that she had become jaundiced, and they both attributed it to obstruction to the flow of bile.

This was then a case of chronic argyric poisoning, and since collargol is a colloidal silver preparation, said to contain 80 per cent. of silver, the cause of the patient's deeply dyed skin seemed clear. Examination at the French Hospital revealed no abnormality with the circulatory or biliary system. The blood-count showed a marked anemia and no parasites. The diagnosis of chronic appendicitis and argyrism was made.

Before operating it was thought prudent to improve the patient's general condition, and incidentally to try to clear her complexion. Potassium iodid had not the slightest effect on her color. During the preoperative preparations the patient developed an attack of acute coryza, for which I prescribed 10 grains of hexamethylenamin, when to my astonishment and her great joy, her color began to fade, becoming several shades lighter. She informs me that when she takes her bath there remains on top of the water a supernatant film, resembling oil, which she had never observed before. She was delighted with the result and naturally desired to continue with the hexamethylenamin medication.

At operation, performed at the French Hospital, I did not find any abnormality with the liver or gall-bladder, but a chronic inflamed and adherent appendix. This was removed, and the patient made an uninterrupted recovery. A noteworthy condition, observed by all, was that her tissue, muscles and intestines had a blueish tinge.

Few if any will have the courage to persist in one medication for such length of time, and one does not know which is more to admire, the persistency of the doctor or the constancy of the patient.

The suggestion which I wish to make is, that if there is another unfortunate person suffering from argyrism, hexamethylenamin deserves a trial.

854 Lexington Avenue.

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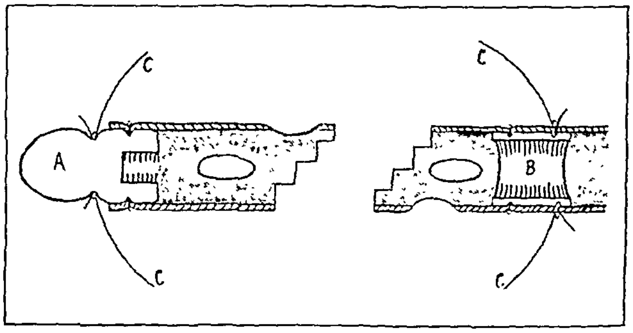
# A NEW TECHNIC OF ROENTGEN-RAY EXAMINATION FOR EARLY DIAGNOSIS OF CANCER OF THE ESOPHAGUS

ANTHONY BASSLER, M.D.
Professor of Clinical Medicine, New York Polyclinic Medical School and Hospital; Visiting Physician, New York Polyclinic Hospital; Chief Gastro-Enterologist, German Poliklinik; Visiting Gastro-Enterologist, People's Hospital; Consulting Physician, Beth David Hospital
NEW YORK

About a year ago I published an article[1] in which was described a method of plugging the cardia to hold bismuth suspensions in the gullet so as to obtain sharp outlines of it in radiographic plates. As experience with the method went along, it was learned that certain unsurmountable difficulties were encountered. These were, the marked degree of distress some persons suffered when the cardia was plugged tightly enough to hold the suspension within the tube, the distress caused in the gullet by forcible peristalsis trying to overcome the plugging below, a dyspnea some experienced when the gullet was distended, regurgitations of bismuth into the mouth, and the fact that quick work was necessary in making the plates or the peristalsis would overcome the plugging beyond the point that traction on the bag seemed safe. It was learned that certain cases of even minor lesions of the gullet had an intolerant condition of the tube. in which tremendous and most powerful peristalsis invariably ensued when plugging and distention of it was brought about. To obviate these as far as possible, a number of changes in technic were tried, which finally culminated in the one here described, which seems as near perfect as possible. By this method there is distinctly less substernal and general chest distress, less dyspnea and forcible peristalsis, and these always under control, no regurgitation of bismuth suspension into the mouth and loss into the stomach, and time may be taken in making the observations and plates, the latter being an important factor for satisfactory Roentgen-ray work.



Apparatus for early diagnosis of cancer of the esophagus.

The apparatus now in use, which is giving complete satisfaction, is the following: A piece of soft elastic tubing, about the length of an ordinary stomach-tube but narrower, is cut across about 23 cm. (9 inches) from one end. The short piece is fenestrated with a number of rather large openings which can easily be cut in it with an ordinary scissors. The solid brass tip (*A*), bored at the inside to hold the end of the mandrin, is tied in one end. A brass collar insert (*B*) is tied to the other end (this collar has two grooves for strings to hold the tubing and the condom). An end of the remaining tubing is now fastened over the brass collar. A skin condom (*C*) is cut at its tip and tied on end piece *A*, and to its upper end in the groove of collar *B*. About 18 cm. (7 inches) above the condom is placed one of the ordinary kinds of pinch-cock. The rest of the apparatus consists of a spiral wire mandrin, of diameter to fit into the bored hole in tip *A* and long enough to extend well beyond the entire length of tubing, and some form of hand-syringe of about 180 c.c. (6 ounces) or more capacity.

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[1] Bassler, Anthony: Early Diagnosis of Cancer of the Esophagus, a New Technic of X-Ray Examination, The Journal A. M. A., April 26, 1913.

Some points in the technic of the use of this apparatus are important. With the patient stripped, the length of the gullet and mouth are measured by the apparatus. This is done by holding the end piece *A* at the ensiform and coursing the tubing upward over the sternum, the left side of the neck, tightly over the external ear, where it joins the head, and forward to the incisor teeth. My custom is to slip the distal end of the pinch-cock to this measured point so as to mark it for introduction. The mandrin is now put in, the pinch-cock closed on it so as to hold the tube stiff, the tube and condom are well soaked in warm water so as to soften the condom, and introduction to the pinch-cock is made. The pinch-cock is now opened, the mandrin withdrawn, and, when possible, the patient allowed a few minutes to become somewhat accustomed to the tube *in situ*. With everything ready, so far as plate-holders, energizer, tube, and tube-shift if stereoscopic plates are to be made, the patient is now prepared. The first step is to extract the air from the apparatus. This is done with the syringe by simply attaching it to the tube, sucking the air out of the apparatus, and pinching the cock so that none will flow back. The acacia-bismuth, or finely powdered barium mixture, ready, the syringe is filled, fastened into the tube, the pinch-cock opened, and it is run into the tube. At the first sign of distress from distention of the condom within, there should be a moment's pause with the injection. Usually more can be delivered after that, but one should not try to deliver the full contents of the syringe unless tolerated. The pinch-cock is then closed, the syringe detached, and after a few minutes the plates are made. After this the cock is opened and most of the suspension siphoned out, particularly when a little traction on the tube is made in the withdrawal.

By use of this apparatus and technic, sharp outline plates of the entire gullet, from the cricoid through the cardia, are possible. Small lesions in the esophagus, pressure effects on it, the width, and observations of the peristalsis are easily accomplished.

21 West Seventy-Fourth Street.

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**The Food Problem.**—It must always be kept in mind in discussing pure food problems that the public has two vital interests at stake. It must be protected against foods definitely proved to be dangerous to health; but it is quite as essential that it should not be robbed of any safe foods on account of unreasoning prejudices. The use of the milk and meat from cows slightly affected with tuberculosis is a case in point.—C. E. A. Winslow.

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# TREATMENT OF INFECTED WOUNDS

THOMAS J. WATKINS, M.D.
CHICAGO

It may be said that infected wounds now so seldom occur that it is unnecessary to discuss their treatment. No wounds should become infected except in cases in which operation is performed during acute infections.

The abuse of wounds frequently observed is the reason for this paper, which will include chiefly suppurative wounds following abdominal and vaginal sections. Infected wounds, however, require much the same care irrespective of their location.

### SUPPURATIVE ABDOMINAL WOUNDS

The treatment which I employ is as follows: An infected abdominal wound is covered with a hot moist non-irritating dressing of gauze. The gauze is kept moist with boric acid or normal salt solution. The dressing is covered by a protective layer of rubber tissue, oiled paper or silk to prevent evaporation. Heat is supplied by a hot-water bag. This dressing is changed from one to three times daily, depending on the amount and character of the discharge. This treatment is continued until the redness, induration, active suppuration or sloughing disappear; that is, until the wound assumes a healthy appearance. The edges of the wound, if separated, are then drawn together by sterile strips of adhesive plaster and a dry dressing applied.

Sutures are rarely removed, except in instances in which they cut through the skin. The wounds are not probed or separated; no drainage material is inserted and no medication is used. No exception is made in cases of intestinal fistulas or abdominal sinuses.

The moisture is used solely to promote drainage. It favors drainage chiefly by preventing coagulation and desiccation of the discharge. The heat increases the blood-supply and hastens suppuration, and has some of the features of the Bier treatment. An extensive suppuration will drain through a very small opening if desiccation of the discharge is prevented. For example, in a recent case of extensive suppuration following an operation for a large ventral hernia, satisfactory drainage occurred through two small openings at the site of tension sutures.

Posture is at times used to promote drainage. Care is observed to avoid all procedures which would tend to disseminate the infection, such as probing, manipulation, separation of the wound or use of rubber tubing, packing, irrigation and the like. It has been known for a long time that the use of antiseptics injures the tissues more than it does the bacteria. Aside from the destructive power of antiseptics and the dangers of dissemination of the infections by irrigation solutions, the force of the fluid mechanically removes some of the delicate reparative tissue.

There is a general tendency to overestimate the ill effects of pus in wounds. Pus is the result and not the cause of the illness. Recovery does not result because the pus disappears, but because the bacteria are destroyed. There is a suggestion that the pus in the early period of suppuration is of some use in destroying the bacteria. In infection in a wound it is probable that the bacteria are mostly destroyed by localized processes and only in a small measure by general immunizing bodies. This, however, must occur to some extent as some of the bacteria must gain access to the general circulation, and "bacteria are found outside the area of inflammation."

Pus contains active phagocytes. Leukocytes outside the vessel wall actively destroy bacteria, but when in the blood-stream have but little such power.[1] The toxins that accumulate in the pus also destroy bacteria. It is interesting to note that Traub and Lister observed that "blood to which putrefying matter was added had within certain limits the power of remaining sweet," and decided that it had definite bactericidal properties. It is a common observation that bacteria gradually lessen in an abscess. The presence of pus means autovaccination. It is suggestive that in certain cases at least it may be better treatment to use autovaccines rather than autogenous or stock vaccines. The damage from pus in wounds is quite generally overestimated. The presence of pus is not an invariable indication for immediate operation. The pus often does less damage than the treatment which is quite generally employed in removing it.

### INFECTION IN CASES OF VAGINAL SECTION

This occasionally results, especially in cases in which there has been an extensive operation. If there is much retention of wound secretion, contamination from vaginal bacteria is almost certain to result and produce infection.

Prophylactic treatment is important, especially in regard to strict asepsis and care to avoid retention of wound secretion. The ligation of all bleeding points and the use of a minimum amount of sutures and unnecessary strangulation of tissue lessen the dangers of infection. I have also abandoned much postoperative treatment of such wounds. The treatment usually employed in such cases is to elevate the head of the bed and to apply hot moist dressings over the vulva. The principle of the treatment is the same as in infected abdominal wounds.

### RESULTS

I described[2] this treatment before the Chicago Medical Society in 1907, after an experience of two or three years. This treatment has been continued since then and has been modified somewhat by gradual employment of less surgical interference.

I have never had any experience with too early superficial closure of infected abdominal wounds when treated with most dressings. Sinuses will occasionally close on the surface for a short time before complete union results, but will reopen spontaneously without disturbance. The same is true of fistulas.

The special advantages of this treatment are:

1. The patient is but little disturbed mentally or injured physically.
2. The wounds heal quickly as there is little surface for repair.
3. The strength of the wound is relatively not much impaired in the absence of much sloughing.
4. The danger of secondary contamination is minimized.

104 South Michigan Boulevard.

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[1] Adami: Principles of Pathology, i, 431.

[2] Watkins, Thomas J.: Care of Suppurative Wounds Following Abdominal Section, Ill. Med. Jour., September, 1907.

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**A Golden Rule.**—The first rule, then, for a good style is that the author should have something to say; nay, that is in itself almost all that is necessary.—Schopenhauer.

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## REPORT OF A CASE OF QUININ POISONING

Elizabeth C. Underhill, M.D., South Hadley, Mass.

The patient, S. A. B., a woman, aged 20, American, a student, two days before the illness reported below, had a mild attack of enterocolitis due apparently to some irritating food she had eaten. Half an ounce of castor oil was prescribed and had the desired effect, and in twenty-four hours recovery seemed complete.

At 1 p. m., November 17, one day after recovery from this illness, I was summoned to see the patient, with the message that her former illness had returned. I found her in a state of stupor, answering questions very slowly, or indicating her answer with a grunt. She denied having taken any medicine of any kind since the dose of castor oil. The tongue was extended on request, in about half a minute, very slightly and very slowly. When I endeavored to take the temperature by mouth, she bit off the bulb in a convulsive way, but apparently was not conscious of this act. The pulse at this time was 100, full, and of good quality; the temperature, rectal, was 99.6, and the respiration, 22, of normal character. The stupor continued to grow more profound for about two hours, and then the patient gradually began to emerge from it. From time to time, during this period, she would complain of her head, but we could obtain no definite information as to the nature of the sensations. The pupils were normal at this time, and reacted to light and accommodation. Knee- and ankle-reflexes were unobtainable. The urine was clear, amber and slightly acid; specific gravity was 1.025; there was no sugar and a moderate amount of albumin, ascertained later to be 1.5 per cent. None was present three days later.

About 4 p. m. the patient began to emerge from her stuporous condition and enter an excitable stage. She tossed about and was restrained with some difficulty. She called for help, for prayer, for divine assistance, etc., and in the intervals would be comparatively quiet. The retching and vomiting continued, with short intervals, until about 2 a. m. At 5 o'clock the patient had become quiet and rational, and on further questioning at this time she stated that she had taken, at 9 o'clock that morning, a bottle of 100 2-grain quinin pills. This statement was verified by finding the empty bottle, and by the druggist's statement that he had sold them to her that morning. She gave as her reason for taking them that she was discouraged over her work, thought she was not keeping it up in a satisfactory manner, and therefore would end her life.

Her condition, from this time on, was perfectly rational. She now began to complain of ringing in her ears and fulness in her head, but these symptoms were not excessive. About 6 p. m. her sight began to be impaired and her pupils to dilate. At 9 p. m. the pupils were dilated as widely as possible, and she could not see—could not distinguish between light and dark.

When the cause of her illness was discovered, an ounce of castor oil was administered, but this was promptly evacuated. A second dose was given in half an hour, which was retained long enough to get a satisfactory result. At 9 p. m. 30 grains of sodium bromid and ¼ grain of morphin sulphate were given, but she did not sleep at all.

November 18 the patient vomited a greenish substance once. Soap-suds enema gave good result, with the evacuation of considerable gas. The eye condition remained unchanged. The patient said that she felt all right, but she was greatly worried over her eyes, and showed great remorse for her deed. Ringing and fulness in the ears had disappeared.

November 19 the patient was very alert to sounds and extremely nervous; she was quiet, but tense. The pupils were contracting a little, and she could now dimly distinguish the figure of a person standing by the bed. She had no pain in the eyes or any part of the body and no gastric irritation. During the twenty-four hours 45 grains of sodium bromid and ¼ grain of morphin sulphate were given. The patient slept three hours, from 10 p. m. to 1 a. m., and rested quietly the remainder of the night.

November 20 she slept practically all night and retained food well. She could see a little better, especially in the morning, and could distinguish lights through the window, 300 or 400 feet distant. Dilatation of the pupils remained about the same. The hearing was abnormally acute, and sounds disturbed. During the day 60 grains of sodium bromid were given, and at night 10 grains of trional.

November 24 the condition of the eyes had gradually improved, so that now she could distinguish the features of persons standing by the bed and accurately describe articles of clothing which they were wearing.

Ophthalmoscopic examination at this time showed considerable infiltration of the veins of the retina, but no choked disk. The field of vision was markedly constricted so that only objects held directly in front of the eye could be distinguished.

She now passed from under my care and went to a distant place, but I have obtained a report of her case and find that her eyes steadily improved, until at the end of six weeks after taking the quinin they seemed to have regained their normal condition.

The case seemed worth reporting because of the unusually large amount of quinin taken, and the comparative infrequency of cases of this kind.

It seems quite likely to me that some of the pills were evacuated undissolved from the stomach and bowels during the hours she was under no treatment, for she gave a history of vomiting several times.

# A SIMPLE AND RELIABLE METHOD OF STAINING SPORES

F. M. HUNTOON, M.D., NEW YORK
Instructor in Bacteriology, Cornell University Medical College

The remarkable resistance of the bacterial spore to the penetration of dyes and other chemical agents has long been of interest to the bacteriologist, and many methods of staining these bodies have been devised.

Most of these methods are complicated, unreliable and especially unsatisfactory in the hands of students, whose limited time does not allow for the many repetitions usually necessary to obtain definite results.

These considerations led to the search for a simple method which would stain spores consistently in the hands of unskilled workers, and as such, be available in the class-room.

Such a method, which has been successfully employed in this laboratory for two years, is here reported.

## PREPARATION OF STAIN

Four gm. of *acid* fuchsin, Grubler, are dissolved in 50 c.c. 2 per cent. watery solution of acetic acid. Two gm. of methylene blue, Grubler, are dissolved in 50 c.c. 2 per cent. watery solution of acetic acid. The two solutions are mixed, shaken and set aside for fifteen minutes. A voluminous precipitate results. The mixture is filtered through a well moistened filter-paper, and the filtrate is employed for staining. (Eosin may be used in place of the acid fuchsin, but does not give as good results.) The reddish purple filtrate will keep for several weeks, but on the appearance of a precipitate should be refiltered.

## TECHNIC OF STAINING

A rather thick smear is prepared in the usual manner, and fixed by heat.

The film is preferably made from an agar-culture; if broth is employed it is advisable to use a small amount of blood-serum or white of egg to fix the material to the slide.

The film is covered with a generous amount of the dye and steamed vigorously for one minute, stain being added if necessary to prevent drying.

When washed in water, the film appears stained a bright red.

The slide is now dipped a few times in a dilute solution of sodium carbonate (7 or 8 drops of a saturated aqueous solution in a tumblerful of water), and the moment the film turns blue the action of the alkali must be interrupted by rinsing the preparation in water. The film is now ready to be dried, mounted and examined. The whole procedure takes less than two minutes.

On examination the spores will be found to stain a deep red, and the bodies of the bacteria bright blue, the intensity of the blue stain depending on the length of exposure to the alkali; too long an exposure may cause the spores to stain blue. Old spores, and particularly free spores, stain well, young spores faintly or not at all.

That the exposure to the acetic acid is the essential portion of the method is shown by steaming a film with a 2 per cent. watery solution of acetic acid and resteaming with a watery solution of any of the usual bacterial dyes. On examination the spores will be found to have taken up the stain, even if as weak a dye as Bismarck brown is employed.

By decolorization with alcohol for a few seconds to remove the stain from the bacterial bodies and then counter-staining with a contrast dye, any combination desired may be produced.

The general application of this method seems to be established by the successful results obtained on the following spore-bearing strains: *Bacillus subtilis, B. anthracis, B. megaterium, B. sporagenes, B. lacti morbis, B. putrificus, B. oedematis maligni, B. tetani, B. mesentericus, B. cereus,* and the bacillus of *symptomatic anthrax*. A failure must be recorded with the *B. mycoides*, but this strain also proved resistant to all the standard methods.

The advantages claimed for this method are its simplicity and reliability.

It may be of interest to those engaged in teaching to know that this method has been used in class-room work for the past two years and has yielded uniformly reliable results.

A number of the strains employed were obtained from the collection at the American Museum of Natural History, for which I desire to express my thanks to Prof. C. E. A. Winslow.

**Boils.**—Some time in the early eighties a Dr. Clay of London (in the *Lancet*, if I remember correctly), recommended the use of piperin, the active principle of black pepper, for treatment of furunculosis. Having been from early youth susceptible to this infection myself, I gave the matter unusual attention, with the result that from that time I have treated practically all of my cases with this remedy. Dr. Clay's claim for piperin was a rational one, and will be much more readily understood now than it was thirty years ago. It was that piperin as an intense capillary stimulant brought about increased skin resistance which caused an arrest of development in beginning pustules and subsequent immunization for that period of infection. His method was to administer it in quite large doses at first or until the physiologic effect manifested in an intense burning sensation over the entire body was produced, afterward giving it in smaller doses for a somewhat extended period. In many years of this treatment, I have had no failures except in the aged, or those with special complications. In younger persons it has, as a rule, proved superior to autogenous vaccines. Beginning with from 5 to 10 grains three times a day until the effect mentioned above is produced, I repeat at intervals or use it continuously, as deemed best. Small furuncles often disappear without suppuration, while others become limited in their severity. This procedure is absolutely safe, and annoying symptoms speedily subside when the doses are lessened or discontinued. —JOHN L. DRYER, M.D., Santa Ana, Cal.

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**Appropriation for the Children's Bureau.**—In the annual report of Julia C. Lathrop, chief of the Children's Bureau, giving a summary of the work of the first year's bureau and outlining the plan of future work, an appropriation of about $165,000 was asked for for the year 1914. To the great disappointment of the chief of the bureau and of persons interested in child welfare, the appropriation committee of the House saw fit to recommend only $25,000 for the work of the bureau, which seems a ridiculously inadequate sum to carry out the plans of investigation and constructive work prepared by the bureau chief.

# *New Instruments and Suggestions*

## A SAFE AND EFFECTIVE METHOD OF NASAL AND NASOPHARYNGEAL DOUCHING *

Elmer L. Kenyon, A.B., M.D., Chicago
Assistant Professor in the Department of Nose, Throat and Ear, Rush Medical College

The danger inherent in the commercially advertised douches is so evident as to warrant their general condemnation. The objection to them lies in the turned-back position of the head required in their use, since that position encourages entrance of infective fluids not only into the eustachian tubes but also into the sphenoidal, and to a lesser extent, into the anterior ethmoidal, frontal and antral sinuses. Not only that, but the flooding of the nasal cavity and the nasopharyngeal space by the sudden pouring in of a large amount of fluid makes the flow of some of this liquid into these sinuses almost inevitable. And even more, the influx of a large amount of fluid into the nasopharynx almost inevitably sets up a coughing and hawking and swallowing which is likely to throw the eustachian tube open just at the dangerous moment. Nasal douches requiring the tipping back of the head, especially if the amount of fluid thrown into the nose at one time be large, should be considered too dangerous for ordinary use (Fig. 1).

All rhinologists realize this danger, for all have encountered the injurious effects of this method, especially in the incitation of otitis media. Therefore many of them adhere to the ordinary hand atomizer for home douching, unless in exceptional cases; for the small amount of fluid emitted from the atomizer, while, to be sure, serving very imperfectly as a douche, yet carries with it a minimum danger of sinus or eustachian infection. The office atomizer serves well most purposes of nasal and nasopharyngeal douching. It is for home use that special methods are required. Watson Williams (A Coarse Nasal Spray to Avoid the Dangers of the Nasal Douche, *Brit. Med. Jour.*, July 19, 1913, p. 122) proposes a specially constructed coarse nasal spray for home douching. With the head held forward this would be free from danger. Its objection might lie in insufficiency of fluid and of propelling force. The following method, which I have thoroughly tested for years is simpler and more effective.

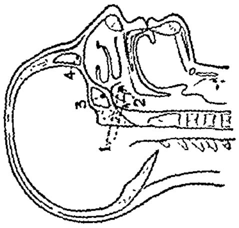

Fig. 1.—Showing the downward direction of the eustachian tube (1, 2) and of the sphenonasal duct (3) with the head turned back, in the position demanded by the commercial douches.

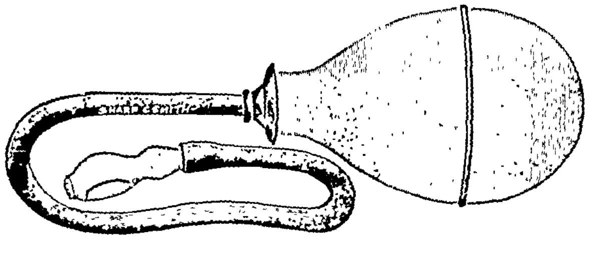

Fig. 2.—Nasal syringe.

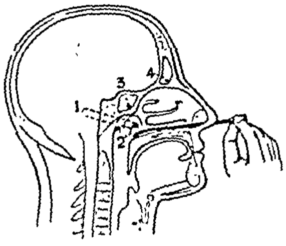

Fig. 5.—Method of passing the nasopharyngeal tube along the lower meatus of the nose into the nasopharynx.

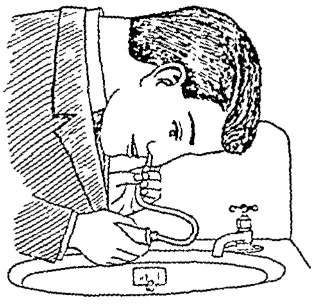

Fig. 3.—Method of using the syringe.

In order to douche the nose and nasopharynx effectively and at the same time safely, the following three ideas must be carried out:

1. The head must be held forward, thus preventing the flow of the fluid into the eustachian tube, and tending to prevent its flow into the sinuses of the nose.

2. The fluid must enter the nose in several sufficient streams at different forward angles, but the streams should not be large enough or the force violent enough to excite sneezing or coughing.

3. The naris should not be allowed to become filled with fluid, which might occur if the douching nozzle completely filled the external naris, thus preventing a return flow of fluid.

I use a rubber bulb, preferably with a capacity of 6 ounces, although one of 2 ounces' capacity is practicable. To this is attached a rubber hose about 18 inches long, with a nasal nozzle, or with a nasopharyngeal tube, at the end, as the case requires. The illustrations will make this clear. The tip which I employ is made of glass and is provided with a return groove, so that the fluid will not accumulate in the nose. The force employed is of but slight importance and can be easily regulated. If the naris is relatively free from obstruction, some of the fluid from the nasal tip will be projected against the posterior wall of the nasopharynx, but if one desires thorough cleansing of the space back of the nose, he may use the "nasopharyngeal tube." This is about 6 inches long, $\frac{3}{32}$ inch in diameter, is provided with a slightly enlarged end having fine perforations, and is slightly bent at the distal end in the direction of a ring guide at the handle. The tube is passed by the patient through the lower meatus of the nose until it touches the posterior wall of the pharynx. The slight bend in the tube helps the patient to keep the end on the floor of the nose in passing. The holes in the distal end of the tube, pointing in various directions, cause the entire nasopharynx to be cleansed. Since the fluid in the nasopharynx cannot, owing to the downward position of the head, pass toward the larynx, and since the streams are fine and strike gently, cough is not likely to be excited. By withdrawing the tube gradually any part of the naris may also be directly cleansed.

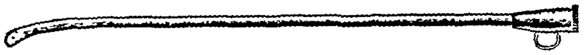

Fig 4.—Nasopharyngeal tube; to be substituted for the nasal tip when the nasopharynx requires special cleansing.

Provided that the (usually alkaline) fluids employed are warm and weak, as they should be, the use of the nasal tip is so simple and agreeable that even young children make no objection. Indeed, it is in the persistent nasal discharges of young children that the apparatus has one of its most needful uses. The nasopharyngeal tube is more unpleasant, but is also less often needed.

The apparatus is sold with the following printed instructions to the patient:

> Washing out the nose (douching) if carelessly done is attendant with danger to the ears. This apparatus avoids such danger, but the following simple directions must be adhered to:
>
> 1. Hold the head well down over a basin.
> 2. After completing the douching remain with the head down until all free fluid has run out the nose or mouth.
> 3. For ten minutes after the douching, when blowing the nose, hold the head well forward.
> 4. In passing the nasopharyngeal tube (see cut) through the nose, keep the tip on the floor of the nose, the ring guide at the handle pointed downward, and use no force. The tube should be passed about horizontally when the head is in the upright position. It should enter the nose for a distance of about 3 inches. When it is felt to have touched the back wall of the throat, draw it forward a quarter of an inch while the douching is being carried on. Also follow directions 1, 2 and 3.

While it has required considerable space for a clear presentation, the method is very simple, is effective, and, more than all else, safe.

104 South Michigan Avenue.

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* Presented before the Chicago Laryngological and Otological Society, Oct. 6, 1913.

## CYSTOSCOPIC BLADDER FORCEPS

Herman L. Kretschmer, M.D., Chicago
Urologist to Presbyterian Hospital; Genito-Urinary Surgeon to Alexian Brothers' Hospital

The removal, under the guidance of the eye, of foreign bodies from the urinary bladder in women, is quite simple, because the short, easily dilatable urethra allows the introduction of a forceps alongside of the cystoscope.

In the male, however, this problem is a more difficult one. Heretofore, I have resorted to the use of Young's cystoscopic rongeur. Soon, however, the biting edge of this instrument becomes dull and full of nicks, and it is apparent that some modification is necessary in order to employ it for the abovementioned purpose.

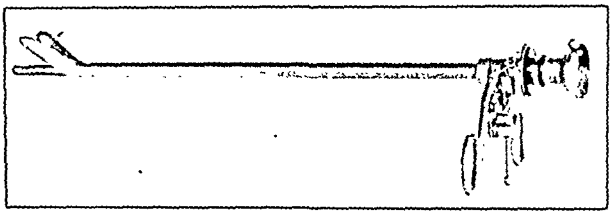


Fig. 1.—Cystoscopic bladder forceps: a modification of Young's rongeur.

Instead of the light, thin blades with the sharp-cutting edge, I have had constructed heavy blades, with corrugated surfaces. The blades are heavy and strong, so that they are capable of holding small calculi which have passed down the ureter into the bladder. The instrument can also be used for removing small or large fragments of calculi remaining in the bladder after litholapaxy, as well as foreign bodies introduced from without. By means of the lock handle, one can grasp the foreign body so that it can be removed without danger of losing it in the urethra during its extraction from the bladder. The cystoscope furnished with the rongeur can be used with this forceps.

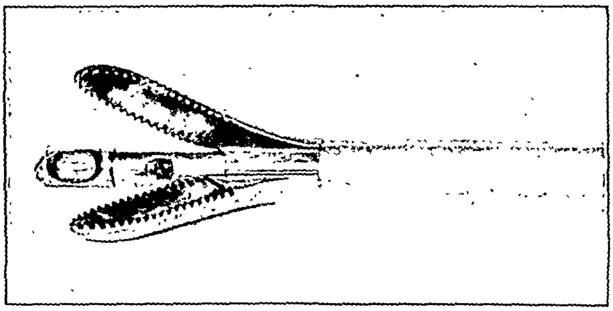


Fig. 2.—Jaws of cystoscopic bladder forceps.

29 East Madison Street.

## AN APPARATUS FOR THE ESTIMATION OF CHLORIDS IN THE URINE (CHLORIDROMETER)

E. Blasucci, M.D., New York

I think that a rapid and easy method for the accurate estimation of chlorids in the urine is timely, and, I trust, well accepted by the busy practitioner to-day, when functional diagnosis has taken so much preponderance over anatomic conception in renal diseases.

The retention of chlorids in our system (chloridemia) is often the first hint we have of, and the prelude to, a more serious morbid condition, namely, the retention of urea (azotemia, Widal). While for the latter we have a direct method of research by the estimation of urea in the blood, for the former the best element of diagnosis is still the relation between ingestion and excretion of the salt. In order to get in time an opinion on the functional capacity of the kidney, our attention therefore must be directed first to the quantitative estimation of chlorids in the urine.

For the last few years I have been using an apparatus whereby I have reduced the technic for this examination to a very simple procedure. The chemical reaction used is that originated by Mohr; and the results which I get can be compared, in a measure, with those obtained by the most perfected laboratory methods of Salkowski and Neubauer.

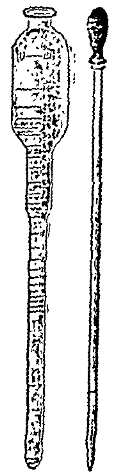
A glass tube, funnel-shaped and about 30 cm. long, carries at its lower extremity a mark, "I" (indicator), for potassium chromate, and above this another mark, "R" (reactive), for silver nitrate. There are then other marks for the urine to be added in order to complete the reaction. A long pipet is used for depositing the chromate at the bottom of the tube to prevent the chemicals coming in contact beforehand on the walls of the tube. This is for the sake of accuracy.

By the union of the two solutions a red precipitate of silver chromate is readily formed on shaking. Urine is then added slowly and cautiously (shaking and reversing the tube kept closed by the thumb) in order to catch the right moment when every trace of red precipitate disappears to give place to the formation of a canary yellow due to the reintegration of the potassium chromate. This indicates the end of the reaction. At the level reached by the added urine, one reads the quantity of chlorids per thousand contained in it.

The original Mohr reaction, reversed as I have described, offers the following advantages:

1. The reintegration of the potassium chromate gives a well-defined canary yellow which is readily recognized as soon as every trace of red has disappeared, whereas by the old method it is more difficult to catch the right moment when the first trace of an orange tint (caused by the silver chromate) appears. One might be induced to judge of the change a little too late, as it generally happens. With very dark urines, especially, the superiority of this procedure over the other is evident.

2. The uric acid, the xanthic basis, the pigments and particularly the carbonates which are present in the urine, have greater affinity for silver than chrome has. If we add, according to Mohr, silver nitrate to a fixed amount of urine (chromate being present in order to obtain a red precipitate when all the chlorids are saturated), all those bodies will combine with the silver before any red tint appears. Hence, the greater quantity of silver expended for them shall be accounted for as used for chlorids, which is not so. By the new procedure, the red chromate will disappear as soon as all the silver it contains shall have been absorbed by the chlorids of the added urine, and all those bodies have no chance to combine and retard the reaction. The calculation then will be more correct.



Chloridrometer.

3. By the new procedure the less the quantity of chlorids dissolved, the greater the quantity of urine required, the slower the reaction and so much easier the determination of the right moment when the changing of color takes place. If, instead, the solution of silver nitrate is added to a fixed amount of urine, the reaction will be slower when the quantity of chlorids is large, and will be more rapid when the percentage of chlorids is low, whereas it is just in this case that more precision is required.

As regards the constitution of the scale on the instrument, it must be remembered that the specific weight of the molecule of sodium chlorid (NaCl) is 58.5; that of the molecule of silver nitrate ($AgNO_3$) is 170. If 58.5 parts of sodium chlorid are saturated by 170 parts of silver nitrate, 1 gram of sodium chlorid will be saturated by $\frac{170}{58.5} = 2.9$ gm. of silver nitrate; and proportionately, 0.1 gm. of sodium chlorid by 0.29 gm. of silver nitrate. If we take 5 c.c. of a solution of silver nitrate of a strength of 5.8 per cent., we shall have exactly 0.29 gm. of the salt in it, and it will be changed into silver chromate by the addition of a few drops of a saturated solution of potassium chromate. If we now add urine until the pale canary-yellow color shows us that the reintegration of potassium chromate has taken place, we shall know that all the silver contained in the red chromate shall have been combined to the chlorids, and to them only. In that quantity $x$ of urine is then contained exactly 0.1 gm. of sodium chlorid and in 1,000 gm. of the same urine $\frac{0.1 \times 1{,}000}{x} = \frac{100}{x}$ of sodium chlorid are contained. For example: If the quantity of urine used for the reaction was 20 c.c., we shall know that in the urine are contained $\frac{100}{20}$, or 5 gm., of chlorids per thousand; and inversely, of a urine containing 5 gm. per thousand, 20 c.c. will be required (or 100:5); of a urine containing 4 gm. of chlorids per liter, 25 c.c. (100:4) will be needed in order to complete the reaction; and so on.

We can therefore easily build up a scale showing the exact quantities of urines required to determine the reaction, according to the different percentages of chlorids which they contain. The scale is given in the accompanying tabulation.

QUANTITY OF URINE REQUIRED TO DETERMINE THE REACTION

On 0.29 gm. of silver nitrate according to the various Percentages of Chlorids

| Chlorid gm. Per Liter | Urine c.c. | Chlorid gm. Per Liter | Urine c.c. |
|---|---|---|---|
| 1 | 100.00 | 9 | 11.11 |
| 1.5 | 66.66 | 10 | 10.00 |
| 2 | 50.00 | 11 | 9.09 |
| 2.5 | 40.00 | 12 | 8.33 |
| 3 | 33.33 | 13 | 7.69 |
| 3.5 | 28.57 | 14 | 7.14 |
| 4 | 25.00 | 15 | 6.66 |
| 4.5 | 22.22 | 16 | 6.25 |
| 5 | 20.00 | 17 | 5.88 |
| 6 | 16.16 | 18 | 5.55 |
| 7 | 14.28 | 19 | 5.26 |
| 8 | 12.50 | 20 | 5.00 |

If the urine should contain more than 20 per thousand of chlorids, it may be diluted with equal parts of distilled water and the test repeated, doubling the figure obtained at the end of the reaction. If, on the other hand, the percentage of chlorids is less than 1 per thousand, one can dilute the solution of silver nitrate with 3 or even 9 parts of water, then reducing the result obtained to one-quarter or one-tenth, respectively. In this way, even the smallest percentages of chlorids in the urine can be determined with accuracy.

679 Lexington Avenue.

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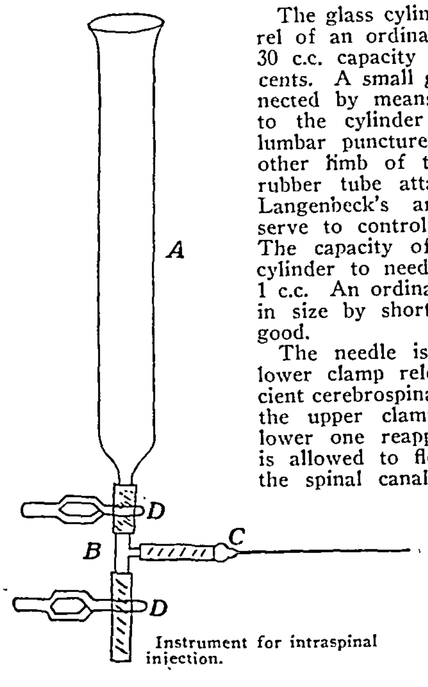
## INSTRUMENT FOR INTRASPINAL INJECTION

Clarence Emerson, M.D., Ph.D., Lincoln, Neb.
Pathologist, Nebraska State Hospital

The glass cylinder (*A*) is the barrel of an ordinary glass syringe of 30 c.c. capacity and cost 10 or 15 cents. A small glass T (*B*) is connected by means of rubber tubing to the cylinder (A), and to the lumbar puncture needle (C). The other limb of the T has a short rubber tube attached to it. Two Langenbeck's artery clamps (D) serve to control the flow of fluid. The capacity of connections from cylinder to needle should be about 1 c.c. An ordinary glass T reduced in size by shortening the limbs is good.

The needle is inserted with the lower clamp released. When sufficient cerebrospinal fluid is withdrawn the upper clamp is removed, the lower one reapplied and the fluid is allowed to flow by gravity into the spinal canal.



Instrument for intraspinal injection.

The instrument serves its purpose well, can be easily sterilized and is recommended by its cheapness and the ease of replacing broken parts.

# Therapeutics

## MEAT

It is not proposed to discuss the relative nutritive value of various meats, or the rapidity with which they are digested, but briefly to note a few practical conclusions taught by the physiology of nutrition.

1. Ordinarily, we should consider that the flesh of fish and shell-fish, except perhaps oysters and clams, and of chicken and birds is meat.

2. No marked chemical difference exists between red and white meats.

3. Meat having considerable amounts of fat deposited between its fibers, as fresh pork (sparerib), does not digest so readily as lean meat, such as beef.

4. The delicate, tender portions of porterhouse steak, roast beef, young tender lamb chops and the breast of a young chicken or bird will digest more readily and cause less gastro-intestinal disturbance in those whose digestion is imperfect than will other meats.

5. The important point is, that the final extractives of all meats are alike, and if these are not easily excreted by the kidneys, all meats should be prohibited. This is true in acute nephritis and generally true in chronic parenchymatous nephritis. All acute inflammations of the skin are better on a no-meat diet, and often patients with chronic eczema are benefited by excluding meat from their diet.

6. Any particular meat that causes indigestion would harm such a patient more than a meat that he digests readily, but this is because of the formation of by-products and not because the ultimate end-products of the several meats materially differ.

7. It is generally true that unless there is a good deal of intestinal putrefaction and high blood-pressure, meat once a day is better than no meat for a patient with chronic interstitial nephritis. Such a patient may very well have a vegetable or milk day, as the diabetic has a greens day, once a week.

8. A high blood-pressure may be more or less lowered by excluding meat from the diet.

9. In all acute rheumatic conditions the patient is better off without meat, because it produces more systemic acidity and therefore diminishes the alkaline salts of the blood.

10. Gout is neither prevented nor cured by interdicting the use of meat, but it is improved (and uric acid deposits are more or less prevented) by withholding all foods rich in nucleoproteins, such as sweetbread, liver, shad-roe, etc. Also, it has been shown that alcohol taken with a meal containing meat results in the formation or excretion of more than the normal amount of uric acid during the final metabolism of the meat.

11. The cure of tuberculosis is best aided in this climate by a moderate daily allotment of meat.

12. Because meat stimulates the thyroid, it should be withheld in all cases of thyroid hypersecretion. It should be given in thyroid hyposecretion.

13. Most neurasthenics need meat.

14. When kidney function is impaired large amounts of meat-extracts and beef-teas or broths should be withheld, as they, more readily than meat, cause retention of waste products.

15. Although meat broths, whether home-made or artificially prepared, offer little if any real nutrition,

they may stimulate not only the circulation and the nervous system, but also nutrition, and may, by stimulating the digestive secretions, aid the digestion of other foods. Hence, the kidneys being sufficient, while we should not depend on beef-tea as a food or real nutriment, it may be of marked benefit in serious illness. Also, a cup of bouillon or consommé before dinner may have a physiologic use.

## DIGESTANTS

The value of gastro-intestinal digestants has long been misunderstood, and such preparations have consequently been much misused. Acids and pancreatin, soda and pepsin, and pancreatin and pepsin have been so hopelessly mixed in prescriptions and in the patient's stomach that the only saving factor has been in their harmlessness.

Those who understand the subject of digestion have realized that it is comparatively futile to expect aid in intestinal digestion from pancreatic extract administered by way of the stomach. Even if it were temporarily protected by an alkali, as sodium bicarbonate, its activity would be more or less impeded by the hydrochloric acid of the stomach before entering the alkaline intestine, though its amylolytic ferment might act in the stomach, protected by the alkali, until free hydrochloric acid was present or a certain amount of acid peptones had formed.

For predigesting such protein foods as milk, pancreatin and a sufficient amount of alkali as combined in various powders or liquids on the market may be of value, but in the stomach pancreatin is practically useless. Pepsin is rarely needed, and generally is of value only when combined with dilute hydrochloric acid. If pepsin is indicated, the dose generally given is small when the size of a meal is considered. Also, pepsin is rarely absent from the stomach. Dilute hydrochloric acid is a valuable aid in correcting the imperfect digestion in the stomach which frequently occurs. It should be remembered that when given directly after meals this acid will inhibit the starch digestion of the ptyalin, though this may often be negligible.

Because the value and action of these digestants are misunderstood, a report of experiments made in an effort to clarify this subject is welcome, and one is offered by J. H. Long and G. W. Muhleman[1] of Chicago. They state that ptyalin is so sensitive to acid that even traces of hydrochloric acid will render it inert. Consequently, any acid administered after a meal would inhibit salivary starch digestion.

They also state that the pancreatin marketed is "often not much more than fat-free ground pancreas," while, theoretically, pancreatin should be a precipitated and concentrated extract of the pancreas. Such a preparation would, of course, be much more expensive than the substance now sold as pancreatin. Long and Muhleman find that in fat-splitting power, these pancreatic powders are very deficient. They contain little of the lipase enzyme. Therefore they are valuable only as a digestant of protein and of starch.

The experiments also show that very small amounts of acid destroy the amylopsin of pancreatin; therefore, its activity is destroyed when pancreatin is administered by way of the stomach. Pepsin also seems to delay or interfere with pancreatic starch conversion. It has not been demonstrated that pepsin alone can interfere with trypsin action; that is, with the proteolytic power of pancreatin. Moderate amounts of sodium carbonate (which perhaps is true also of sodium bicarbonate, though it is not stated) do not interfere with the action of trypsin.

These experiments seem to show that hydrochloric acid in a 0.2 per cent. solution — the normal strength of this acid in the stomach — neither destroys nor essentially retards the action of trypsin when the solution has been neutralized by an alkali. It is shown, however, that the *proteolytic ferment of trypsin* when subjected to the action of pepsin is partially destroyed and that it may become inert if subjected to the action of acid and pepsin during the length of time that is required in ordinary digestion. Therefore, no justification seems to exist for administering pancreatin either for its proteolytic action in the intestine or for its amylolytic action in the stomach.

These investigators examined a number of pancreatins purchased on the American market. Although these may be obtained from many firms the sources of supply are few. Some of these products showed, under proper conditions, a fair amount of amylolytic action, but their tryptic power was usually low. In the strength required by the United States Pharmacopeia, pancreatin is of but little value, except in predigesting certain articles of food. It also commonly loses its digestive power with age. Certainly, old preparations of pancreatin should not be used even for predigesting purposes.

# New and Nonofficial Remedies

The following additional articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association. Their acceptance has been based largely on evidence supplied by the manufacturer or his agent and in part on investigation made by or under the direction of the Council. Criticisms and corrections are asked for to aid in the revision of the matter before publication in the book "New and Nonofficial Remedies."

The Council desires physicians to understand that the acceptance of an article does not necessarily mean a recommendation, but that, so far as known, it complies with the rules adopted by the Council.

W. A. Puckner, Secretary.

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[1] Long, J. H., and Muhleman, G. W.: The Mutual Action of Certain Digestive Ferments, Arch. Int. Med., February, 1914, p. 314.

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SATURDAY, MAY 2, 1914

## RESEARCH AND EXPERIMENT IN MEDICINE

The contribution of large and steadily increasing amounts of money from the public funds for the purposes of agricultural research, experiment, and demonstration has brought the authorities entrusted with the expenditure of these funds face to face with the problems of their administration. The nation has a right to expect that the liberal means placed in the hands of scientific men shall be devoted to the ends intended. Science and scientific men have been singularly free from the suspicion of improper practices such as wilful misuse or intentional diversion of trust funds from their proper object; and probably no group in the community better represents the highest type of unselfish devotion to its own ideals. Unfortunately, it happens sometimes that even well-intentioned persons entrusted with the guidance of research and experiment are entirely unfitted by temperament and unprepared by training to appreciate the requirements and limitations of such work. These persons, in assuming leadership, not infrequently violate the spirit of investigation and are responsible for waste of energy and unjustified expenditure of valuable resources.

A review of the situation with regard to agriculture,[1] which is in a sense the pet scientific protégé of the national government, discloses many features that find their counterpart in the field of the medical sciences and therefore are of interest to physicians. The scientific world now has a right to expect of men assigned to research a just conception of the standards and the qualities of such activity. The terminology at present used to distinguish between research and experiment means little and is loosely used. Much difference of opinion and even some confusion may exist as to the originality with which the data are used in a given piece of work and the extent to which it embodies the essential characteristic of research. The boundaries will be continually shifting, because what is original research at one stage may cease to be such at another, and may even pass into the realm of demonstrated fact.

The *Experiment Station Record* well remarks that science, whether for itself or as applied to any particular class of phenomena, is developed through research. Observation and experiment teach facts; and in all science investigation consists in passing from the fact to the law, and in discovering the facts which may lead to the formulation of a law or conclusion. Facts and laws are not artificial or accidental —and are not made by the scientist. Man's only originality in connection with them is their discovery. Facts differ widely in their importance. This is a truth which those who claim to have an interest in medical research all too frequently fail to appreciate. It requires critical study to be sure that what we determine is actually a permanent fact and not merely the accidental result of a particular combination of circumstances.

Many of the so-called clinical investigators seem to overlook the necessity of adopting as simple conditions of experiment as possible and of controlling the limiting factors to the utmost degree. The attempt to make an experiment, conceived in haste, answer too many questions, with a result that is fatal to the whole undertaking, is perhaps one of the commonest errors of the overambitious worker. In medicine one must deal with natural phenomena of inevitable complexity and endless variety. Decisive results and safe interpretations are correspondingly difficult to secure.

Again, isolated facts in medicine, as in agriculture, do not always have the constructive value that such facts may have in pure science, because the investigator is skeptical of them knowing the liability to faulty observation. Yet some seem to believe that *the mere cataloguing of isolated facts, without deducing their causes, consequences or relations,* constitutes research. Accordingly we read clinical "researches" filled with the enumeration of blood-counts, temperature records, pulse-rates, urinary analyses, etc.—facts of themselves having no scope or significance, and representing only routine activity. In true research, observation and experiment should not be allowed to run wild. Merely to observe is not sufficient. "Science is built up with facts as a house is with stones. But a collection of facts is no more science than a heap of stones is a house." How much valuable space could be saved in our journals if it were more widely recognized by those who fill the pages that experiments, if they form a part of real research, are not made at random or by chance or to see what will happen, but advisedly, as a means to an end, and as the outgrowth *of the working plan or of ideas suggested by previous* experiments.

An acceptance of the principles of hypothesis, experiment, and generalization as fundamental guides in research promptly excludes from the category of investigators a goodly number of medical workers who are conducting what we may designate as "experiments" in distinction from research. Their efforts are by no means in vain; but we must learn to distinguish verification experiments, comparative trials, attempts to determine advantageous methods of practice or relative values—results that are of more or less temporary usefulness—from those excursions into the unknown that truly deserve the designation of research. A large share of ordinary clinical study involves the attempt to get a relatively quick result, without resorting to the precision and detail of thorough-going investigation. Such procedures as, for example, the correlation of blood-pressure with certain clinical conditions or the observation of the comparative results of different ways of administering a drug, have been of great value in developing practical methods in diagnosis and therapy. Experimental work of this sort properly constitutes a large share of the effort of clinical men; but like research, it should be progressive, recognizing that advancement depends on building on the things that have become known. In the field of clinical medicine almost endless numbers of combinations of experiences may arise. Most of them give few new results of value. It is the duty of the laboratory worker and the clinician alike to realize that after a certain number of experiments have been made on a given condition one must consider whether or not it is worth while to continue them.

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[1] See editorial notes: Research, Experiment and Demonstration; The Essentials of Research; Lines of Demarcation between Experiment and Demonstration, Experiment Station Rec., 1914, xxix, 701.

Experimental work at present is expensive. The individual using public funds and private endowments or directing their use, in either research or less pretentious experiment, should be careful to conserve the interests at stake and not to extend his attempts beyond what is actually needed. Our great research foundations have begun to realize this far better than have the hospital laboratories and university clinics. We must now regard certain facts as practically established, in so far as it is possible to establish them by the methods employed; and direct our efforts to other lines of inquiry, rather than "move in circles."

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## IRRATIONAL SCHOOLCHILDREN

It is not often realized that irrational individuals who reach insane asylums in early adult life have probably shown during their school years indications that they were either distinctly lacking in intelligence or were of perverted minds. This constitutes one of the most important problems of modern school life. Those familiar with educational systems know that usually most of the difficulty in managing a class, particularly of boys, is caused by one or two pupils who are not amenable to ordinary discipline. Commonly these pupils are a little older than the average of the class because they have been left behind in several examinations, and their added age and superiority of strength gives them an unfortunate influence over other pupils. Often neither teachers nor principals can govern them. They have all the cunning of the insane and sometimes boast that no one can manage them and no one dare touch them. In fact, the mothers of many such boys admit that they have always been uncontrollable.

In some places, particularly the larger cities, special schools are provided for these deficient children, but very often this class of pupils either keep out of such schools, or they are deliberately kept out because they exert an unfortunate influence on other children of low-grade intelligence, often take advantage of them and cruelly abuse them. One or two unmanageable children who consume the teacher's energy without purpose and set a bad example to the other pupils may create lamentable disciplinary conditions in the whole school; and many schools in this country are being conducted under such conditions. Many schoolteachers can tell of being frightened or even of being threatened with weapons by such children; not a few have preferred to have nothing to do with such pupils and have allowed them to go their own way rather than suffer the worry or run the risks involved in the attempt to control or discipline such pupils. Yet the public has not been aroused to the dangers involved in the failure to recognize and segregate deficient children, as adult lunatics are segregated, for the sake of society.

This subject has been placed in the limelight by the murder of a schoolteacher in western New York. She had, as many teachers have, special sympathy with this class of pupil and was going to visit the father of one such in order to secure a mutual understanding between home and school. The conditions of the murder seem to make it clear that it was more of an irrational than a criminal deed.

The solution of this problem requires expert medical assistance. Indeed, in some places such expert aid is already used in the care of these pupils. A crime such as that recently reported should make plain the imperative necessity of dealing adequately with this problem wherever it exists.

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## DISEASE DANGERS OF MEXICAN INVASION

The possibility of war with Mexico has been before our people for some time; if a general war occurs it means invasion of Mexican territory. The question naturally arises, What are the disease dangers which will confront American soldiers in Mexico? It has long since passed into a truism that in war, disease kills more than bullets. Will this prove true in a Mexican war? The increased knowledge of preventive medicine since the Spanish-American War has encouraged the belief that the mortality from disease will be materially lessened. To what extent is this belief justified, and what are the diseases from which our troops may suffer in a tropical country and from which they should be protected?

Aside from the ordinary diseases which might prevail among any body of two or three hundred thousand men, there are certain diseases to which soldiers in camp and in the field are particularly exposed. These are especially small-pox, typhoid fever and dysentery. Small-pox may be disregarded, as any troops sent into Mexico will be immune from this disease through vaccination. Typhoid fever, in the past, has been the awful scourge of military camps. The appalling experience of the Spanish-American War has not been forgotten by our people; the record of twenty thousand cases of typhoid in the Army in six months produced an impression which can never be obliterated. But since then progress in preventive medicine has been made, and vaccination against typhoid is a result. Antityphoid inoculation has been subject to rigorous tests on a large scale in the Army during the past two years, with the result that in 1913, out of ninety thousand men at home and abroad, there was only a single case of typhoid fever among the inoculated, a record that can well be regarded as a triumph for preventive medicine. It is believed that the army surgeon now has a weapon against typhoid that will make the next war unique in this regard. Every officer and man now in the United States Army and Navy is practically safe against this disease, and each recruit will be inoculated at the time he is sworn into the service. The next campaign in which the United States Army will participate will be a practical test of typhoid prophylaxis on a large scale. That it will prove the value of inoculation and will relieve warfare of one of its most horrible accompaniments there is little doubt.

The dysenteries can be divided into those due to bacterial invasion and those caused by ptomains in foods. While the water and food of the soldiers will be more carefully guarded than ever before, a certain amount of intestinal disorder will be inevitable. It can safely be predicted, however, that the nation will be spared a repetition of the "embalmed-beef" scandals of 1898. The work of the general staff of the Army, the development of departmental officers of high efficiency and the enormous amount of publicity on pure food that has taken place in the last decade, ought to insure the American soldiers a wholesome food-supply. After the experience and warning of the past, the American people will hold to a strict accountability any one responsible for supplying the Army with food materials which are not in every way up to the standard.

Of the diseases peculiar to tropical and semicivilized countries, yellow fever, malaria, bubonic plague, cholera and typhus must be considered. The brilliant work of the last fifteen years in demonstrating the transmission of malaria and yellow fever by the mosquito has put our Army and Navy surgeons and sanitarians in possession of all the knowledge needed to control these diseases. The convincing demonstration of the practicability of their control given by General Gorgas in the Canal Zone has proved that malaria and yellow fever can be controlled completely in settled communities. Where men are living in fixed habitations which can be screened and where all possible breeding-places of mosquitoes for a necessary distance can be destroyed, the complete eradication of these two diseases is possible. It remains to be seen, however, what methods can be developed for preventing mosquito infection among soldiers in the field. Mosquito-nets can, of course, be carried, and patients in the field and hospitals can be protected as well as troops in barracks or permanent quarters. But how about troops in the field, scouting parties, pickets and outposts? Undoubtedly American ingenuity will devise methods to meet the needs, and the dangers of these two diseases will be greatly diminished, although occasional cases may be unavoidable. Epidemics, however, will be practically impossible.

Cholera, being borne through water, milk, flies or human carriers, can be prevented only through cleanliness and by maintaining the purity of water-supplies. It is not to-day a particularly dangerous possibility, as it can enter Mexico only by way of the seaports, most of which, in case of a campaign, would soon be in the hands of the Navy and under quarantine regulations. Regarding typhus fever, it is a strange coincidence that the work of Ricketts, by which he demonstrated, at the loss of his own life, that the body-louse is the carrier of this disease, was done at Mexico City, where he went to carry on his investigations on account of the prevalence of typhus among the lower-class Mexicans. This disease, which in past centuries caused enormous loss of life in camps and on shipboard, is limited in its danger and can easily be prevented by avoiding dirty dwellings and contact with dirty individuals. There is as yet no known method of prevention except the avoidance of infection. It is probable that among any large number of soldiers in Mexico, a few cases of this disease will develop.

Bubonic plague is endemic in many of the near-by South American ports. It would probably be a constant danger in the Mexican seaports. Fortunately, it would be confined largely to the seaports and large towns. An army in the field, living in tents on the bare ground, would be practically safe from it. Probably one of the first measures inaugurated by our medical officers on taking possession of a Mexican seaport would be a campaign of rat extermination, as this animal has been shown to be responsible for plague propagation.

These are the principal dangers to American soldiers in Mexico. Our equipment for the control of these diseases is not yet entirely complete; but the enormous increase in scientific knowledge and the equally marked development of practical methods for fighting diseases in the last fifteen years justify the assurance to the American people that the horrors of epidemic disease in past wars will be impossible in our next military experience. The United States possesses to-day in the medical officers of the Army, Navy and Public Health Service a body of trained and expert sanitarians equal to any in the world. Whatever human knowledge and skill can do to protect our soldiers from diseases will be done, and it can safely be said that any army that we may send into foreign territory will be better protected against disease than has ever before been the case in our history.

## TYPHOID DISAPPEARS IN THE ARMY

During 1913 typhoid fever has practically been eliminated from the United States Army. What this means can be appreciated only by those who know the varied conditions under which these men live. About ninety thousand soldiers are scattered over the Philippine Islands, Oahu in the Hawaiian group, Northern China, Panama, Alaska and the United States proper. About twelve thousand have been living under canvas in camps in Texas since February, 1913. Five thousand are native Filipinos living in the Islands.

In another column[1] Major Russell of the Army Medical Corps gives an account of the disappearance of typhoid in the Army. One case of typhoid fever in an inoculated soldier was diagnosed in the battalion at Tientsin, China. Two cases in this country occurred in recruits of four and five days' service, respectively, who had not been inoculated at the time they were taken sick. All usual laboratory methods are used in determining the disease, and all cases of continued fever are so examined.

The United States Census for 1900 gives the average typhoid death-rate as 46.5 per hundred thousand inhabitants. Rosenau states that in this country "there are comparatively few communities of 1,000 inhabitants or more, which, during any period of twelve consecutive months within the last decade, have been entirely free from typhoid fever. In 1908, the death-toll from typhoid fever was no less than 35,000 in the United States. In other words, one person in 200 contracted typhoid fever that year." This would mean at the 1908 rate, 450 cases in the Army at its present strength.

The disappearance of the disease is due to inoculation of all recruits as they enter the service. The general sanitary condition of the posts for the past few years is maintained at the same level, but it must be recalled that soldiers on entering the Army by no means lose touch with civil life. They participate in all features of civilian life, just as any other travelers or visitors, and so are exposed to the same chances of infection that civilians incur. The fact that a population of ninety thousand at a most susceptible age has practically no typhoid can be accounted for only by the immunity conferred by the prophylactic inoculation. The extension of this measure to certain phases of civil life is definitely indicated for adolescents who have not had the fever, in the presence of an epidemic, or for those leaving their homes for travel or for life in the country. Is there no value in this procedure to railroads and other industrial concerns that employ armies of skilled labor, as well as to the individual on farms and railroads whose family is dependent on his manual labor for livelihood? The way has been shown for reducing greatly the three hundred thousand cases per annum in this country by a procedure causing less inconvenience than vaccination.

## ALBUMOSURIA

When proteoses (albumoses) find their way directly into the blood-stream they behave like foreign substances and are promptly excreted, in good measure by the kidneys. This fact, long since ascertained through a large number of trustworthy experiments, has in the past furnished the basis for the interpretation of the excretion of proteoses in the various instances which are classed clinically under the term "albumosuria." The urinary elimination of proteoses (a general term preferable to the more specific name "albumoses") might, therefore, be expected whenever any considerable autolysis of pathologic tissue or exudate with absorption of its products of self-digestion is taking place. Consonant with this was the asserted finding of "albumosuria" in all cases of suppuration, in the resolution of pneumonia, involution of the puerperal uterus, carcinoma and other malignant growths, febrile conditions with tissue destruction, severe liver affections, absorption of simple and inflammatory exudates, etc.

A decade or two ago, when the early chemical researches on the proteoses as primary products of digestion were at their height, the subject of albumosuria was prominently considered in medical literature. The subsequent careful consideration and critical revision of the work reported at that period has led to the conclusion that the appearance of proteoses in the urine is in no sense a constant symptom of any circumscribed group of pathologic manifestations; nor do the cruder methods of analysis then in use and the lack of appreciation of the numerous sources of error permit the earlier records to be regarded as always trustworthy. After a lapse of a number of years, during which the clinical occurrence of albumosuria has received scant attention, the question of its incidence and possible significance is again being considered. The methods of the past have been fortified not only by searching for what might be called a spontaneous excretion of proteoses, but also by testing individual tolerance to large quantities of preformed proteoses administered in a single dose by mouth to a fasting stomach. The amount thus given has been about 35 gm. of a commercial product introduced in the form of a palatable soup. The investigations of Dr. Leo Pollak in Vienna have given a new significance to what may be called alimentary or enterogenous albumosuria diagnosticated by the means here described.[1] It was this type of albumosuria, associated with the abnormal penetration of undigested proteoses through the alimentary barrier, which was long ago supposed to be characteristic of conditions involving pathologic alterations of the gastro-intestinal mucosa. This might occur, for example, in carcinoma of the intestine or in typhoid fever attended with intestinal lesions. Pollak has shown, however, that the detection of alimentary albumosuria cannot by any means always be interpreted as diagnostic of ulcerative changes in the enteric tract; for in some cases the real cause of the reappearance of the proteose lies in diseased kidneys, as indicated by the simultaneous employment of one of the current tests for renal function. It is therefore permissible to speak of renal albumosuria. This is rarely observed to occur spontaneously, that is, as the result of the immediate disintegration of the kidneys.

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[1] Russell, Frederick F.: Antityphoid Vaccination in the Army During 1913, p. 1371, this issue.

In addition to the alimentary and renal types of albumosuria, Pollak maintains also the possibility of a histogenic form, the most conspicuous examples of which are observed in pneumonia. Like others already mentioned, these cases may owe the production of the proteose to a parenteral disintegration of proteins, for the possibility of which the now well-known appearance of blood or tissue proteolytic enzymes may be made responsible. The study of the significance of albumosuria has at length received a new impetus.

## *Current Comment*

### PLASMODIUM TENUE, A NEW MALARIAL PARASITE OF MAN

Sir Ronald Ross has just communicated to the Royal Society of London the discovery, by Dr. J. W. W. Stephens, professor of tropical medicine at the University of Liverpool, of what he believes to be a hitherto undescribed malarial parasite of man.[2] It was first noticed in a blood-slide from a native child in the Central Provinces of India. A striking peculiarity of the Indian parasite is its decided irregularity of form as compared with the regular, almost monotonous contour of the "rings" of the malignant tertian parasite (*Plasmodium falciparum*). The new species, to which the name *Plasmodium tenue* has been given, is extremely ameboid, judging from the stained specimens. Thin processes often extend across the cell or occur as long tails to more or less ring-shaped bodies. There may be several of these processes, and they may give the parasite most fantastic, irregular, web-like shapes. The cytoplasm is very scanty. The nuclear chromatin is out of proportion to the volume of the parasite; and the abundance of the chromatin masses, as well as the marked irregularity in their distribution, seems to be characteristic of the parasite. Its difference from the malignant tertian parasite has been noted above. From the simple tertian parasite it is said to be distinguished by its smaller bulk, more delicate ameboid processes and the arrangement of the chromatin. Typical rings are absent or exceedingly rare. Lastly, its ameboid activity and its tenuity easily differentiate the new species from the quartan parasite. The distinguishing characteristics thus far announced are all of a morphologic nature.

### THE GOVERNMENT MEDICAL SERVICES READY

With the possibility of a foreign campaign before our Army, what is the present condition of preparedness of the Army medical service, especially as compared with its condition at the outbreak of the Spanish-American War in 1898? The contrast gives cause for gratification. In the last fifteen years the Army has been practically reorganized. The development of the general staff and the training of experts for various duties have affected the medical department as well as the other branches of service. The enormous increase in scientific knowledge of disease and its prevention has been utilized by the medical officers. Our Army medical corps is to-day a body of trained military sanitarians unsurpassed in any country. In experience, organization, equipment and training, there is no comparison between the present situation and that in 1898. Experience has been gained in the campaigns in Cuba and the Philippines, in the military expeditions in China and Cuba, and in the maneuver camps in 1911 and 1913, so that the Army to-day possesses a corps of specialists trained in camp sanitation. For over a year, military camps have been maintained on the Texas border, containing from ten to twelve thousand men in a well-nigh perfect state of health. The material equipment of the department is incomparably better than it was fifteen years ago. The present system of field hospital organization was almost unknown in 1898. The organization of mobile sanitary units, namely, the ambulance company and the field hospital, will prove a great advantage. While only four field hospitals are actually in existence, on account of Congressional parsimony, the medical department has on hand ample supplies for a complete system of field hospitals for three hundred thousand men. These supplies are now in storage, packed for shipment and ready to be put on trains or shipboard at a moment's notice. By way of contrast, at the breaking out of the Spanish-American War, the War Department telegraphed the governors of the various states that it would be necessary for each state to send with its troops sufficient medical supplies to last for six weeks, as the government was unable to furnish them. In a word, the medical department of the Army — and the same may be said of the Navy — has shared largely in the general progress which has been made in the last fifteen years. The present medical and hospital corps are as effectually organized, trained and equipped to fight disease as is the rest of the Army to fight the enemy. Complete prevention of disease among large bodies of men under the unavoidable conditions of military life in actual warfare is impossible. The maintenance of sanitary camps and well-equipped and efficient hospitals, as well as prevention of all avoidable diseases among our troops, can be reasonably expected.

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[1] Pollak, L.: Beiträge zur Klinik der Albumosurie (Renale Albumosurie), Ztschr. f. d. ges. exper. Med., 1914, ii, 314.

[2] Stephens, J. W. W.: A New Malarial Parasite of Man, Proc. Roy. Soc. London (B), 1914, lxxxvii, 375.

## THE MEDICAL RESERVE CORPS

While the Medical Reserve Corps was created for a broader purpose than that of having available a list of trained men on whom to call in time of war, at the same time this was one of the important reasons for its organization. There are over twelve hundred officers on the Medical Reserve Corps (inactive list), and those who are willing to serve will undoubtedly be sufficient for any situation that may develop at the present time or in the near future. The Surgeon-General of the Army has sent a circular to each of the officers of the Corps, in which he submits five questions, to which the officers are asked to answer "yes" or "no." The questions are:

1. Are you ready to accept active duty in your home city or its immediate vicinity should occasion require?
2. Are you ready to accept active duty at camps of mobilization, where recruits will be examined?
3. Are you ready to accept active duty in Army hospitals in the United States or elsewhere?
4. Are you ready to accept active duty with troops in the field?
5. How soon after receiving notice that your services are desired can you leave your home?

It will be noticed that an opportunity to do other effective work is here given those who, while willing to do their part, for some reason or other are not able to go to the front. Many of the officers are men who have organizing ability, who have been connected with hospitals, and who, for this reason, would be of great assistance in administrative work. Some now belonging to the Medical Reserve Corps are men beyond the age-limit for entering as volunteer surgeons for military service or, in fact, for active work in the field. In time of war, however, there is much to be done besides following the troops: recruits must be examined, hospitals equipped, hospital supplies of all sorts selected, inspected, purchased and distributed, base hospitals maintained, and wounded and incapacitated men transported. All of these duties can be performed by men who, though they have not had actual military training or experience, are able to relieve the regular military officers whose services can be utilized where they will be most valuable.

## THE FRIEDMANN REMEDY AGAIN

When Friedmann came to this country to exploit his "cure" for consumption, the question was raised: Why does he not remain in his own country to prove or disprove, by careful investigation, whether his remedy has value? For a long time, no unbiased investigation of the Friedmann treatment had been, or could have been, made in Germany, for the product was not available to German physicians until after gullible America had been "worked" to the limit. After Friedmann returned to Germany, he arranged to sell the remedy to German physicians, and we are now beginning to receive the results of its unbiased use in the land of its origin. In our Berlin Letter[1] this week an abstract is given of several recent German articles on the Friedmann remedy. These reports appear to be uniformly unfavorable. They add to the testimony already given in this country that Friedmann's remedy is not only inefficient but also may be dangerous. The investigations of Dr. Brauer of Hamburg are especially noteworthy, as they were made under circumstances that might have been expected to be highly favorable to the remedy, the majority of the injections having been made by Friedmann himself. Moreover, Brauer and his assistants attended the Friedmann Institute to learn the exact technic. The reports add emphasis to the results reported by Professor Rabinowitsch, namely, that the material is likely to be contaminated, sometimes with virulent bacteria, and the remedy itself may prove injurious, if not actually fatal. More than seven months ago, THE JOURNAL expressed its opinion of the Friedmann remedy and the method of exploitation in this country in these words: "Once more it should be stated that the so-called Friedmann cure for tuberculosis is utterly discredited. All reliable reports regarding the treatment of patients by Friedmann's method seem to show either that it is actually injurious or else that it is less efficient than other well-known and less dangerous means of treatment."

## A BRITISH OPINION OF AMERICAN PHYSICIANS

During the early part of this year there appeared in various London publications advertisements of a popular encyclopedia containing signed articles by leaders in the medical profession.[2] This encyclopedia, immediately on its publication, was advertised with all the accompaniments of modern publicity methods; namely, full-page newspaper advertising, "sandwich-men," etc., the use of the names of the medical contributors forming a conspicuous portion of the advertising. The physicians involved at once wrote letters to various medical and lay publications declaring that the use of their names was entirely unauthorized and disavowing any connection with the encyclopedia beyond the reading of a few proof-sheets at the request of the editor. The encyclopedia is of that type familiar in this country as a "family guide." It boasts that it contains two thousand prescriptions for the use of the public. Apropos of this, the *Medical Press and Circular*[1] remarks that "there could hardly be anything more fraught with danger to himself and his friends than the misguided individual who reads up a medical book and thinks he is qualified to treat maladies of various kinds." This type of person was once cautioned to be careful lest he die of a misprint. So much for the encyclopedia. The British journal in question, however, proceeds under the title of "Americanizing the Profession" to criticize "the fever of self-advertisement which appears to have invaded the American profession from tip to toe." It says: "In America, frank advertising by medical men is the general rule, and the most successful man is often he who can best attract the reporters to his doorstep. It almost looks as if the Americanizing of a certain section of our newspapers were to be followed by the Americanizing of our medical profession." It would be interesting to know where the *Medical Press and Circular* secured the information on which to base the amazing statement that in America frank advertising by medical men is the general rule. Such sweeping general statements, without any knowledge of facts to support them, are not often found in America in reputable scientific journals. We expect to find them only in "yellow journals." The *Medical Press and Circular* would do well to secure an American correspondent whose statements can be relied on, and to avoid the methods of the yellow journal in discussing sensationalism and its results. We must refer the *Medical Press and Circular* to the statements made in a previous editorial: "An honorable physician could not conscientiously advertise for personal business, for the same reason that the honorable minister and lawyer would not advertise. A professional man has no commodity to sell; his only assets are his scientific knowledge and his personal ability; and he who claims to possess greater knowledge or greater skill than his professional associates—whether physicians, preachers or lawyers—is an egotist, or worse, and forfeits the respect of both his professional brethren and his fellow citizens."

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[1] Page 1415, this issue.
[2] London Letter, p. 1414, this issue.

## A SKIN REACTION INDICATIVE OF TYPHOID IMMUNITY

Gay and Force[2] have found that a preparation of the typhoid bacillus made in the same way as Koch's old tuberculin when applied to the skin by the von Pirquet method produces a clean-cut reaction in 95 per cent. of persons who have had typhoid fever. In two instances the attacks occurred forty-one and thirty-three years, respectively, before the test. The reaction failed to occur in 85 per cent. of persons without any history of typhoid, the persons reacting positively probably having had mild and unrecognized attacks. These investigators found further that of fifteen persons vaccinated by the United States Army method from four and three-quarters years to eight months previously, nine showed the reaction, and that twenty-five persons inoculated with a sensitized vaccine from one to eight months previously all reacted positively. The preparation of typhoid bacilli used in these tests consisted of a five-day culture in 5 per cent. glycerin-broth evaporated over acetone to one-tenth its original volume. In view of its simplicity, this test may prove to have practical value in determining whether persons who have had typhoid or who have been inoculated against typhoid are protected against the disease. Eventually it may be concluded that, in the inoculated, a negative skin-test is an indication for reinoculation. It is also possible that the test may prove of service in the study of the efficacy of different methods of protective inoculation. Extended observations will be necessary before the full significance of the reaction can be ascertained.

## COLD WEATHER AS A FACTOR IN THE SPREADING OF DIPHTHERIA

By exposing plates of suitable mediums before the mouths of diphtheria patients while coughing or talking and then determining the number of colonies of diphtheria bacilli that develop on the plates, an idea may be obtained as to the extent to which bacilli are disseminated under these circumstances. In experiments of this kind Teague[1] found that most of the patients observed while coughing and talking emitted diphtheric bacilli in what would seem to be small numbers. It has been observed in experiments on the dissemination of prodigiosus bacilli in sputum droplets (the bacilli, which are harmless, are introduced into mouth and throat on swabs or in gargles) that low temperature markedly prolongs the life of the expelled bacilli, which, according to Hutchison, may be carried over comparatively considerable distances up to 600 meters (almost 2,000 feet). As the diphtheric bacillus is more resistant to drying than the prodigiosus bacillus, it is quite probable that the danger of droplet infection is greater in inadequately heated rooms than in rooms properly warmed, and that we have here an additional factor to account for the increased prevalence of diphtheria in the colder season. In this connection it may be recalled that the effect of low temperature in prolonging the life of bacilli in expelled sputum droplets is regarded as having played an important part in the epidemic of pneumonic plague in Manchuria in the winter of 1910-1911.

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[1] The Family Encyclopaedia, Med. Press and Circular, 1913, xcvii, 271.

[2] Gay, Frederick P., and Force, John N.: A Skin Reaction Indicative of Immunity against Typhoid Fever, Arch. Int. Med., March, 1914, p. 471.

[1] Teague: Jour. Infect. Dis., 1913, xii, 398.

Life.—Life is not mere living but the enjoyment of health. —Martial.

# Medical News

## ALABAMA

**Hospital Annex.**—An annex to the Hillman Hospital, Birmingham, has been completed and other improvements to the institution have been made.

**Meningitis at Bessemer**—Twenty-seven cases of meningitis were reported from Bessemer under date of April 15. Bessemer is a town of 20,000 and the disease is not regarded as epidemic.

**Health Bulletins.**—Dr. R. M. Cunningham, city health officer of Birmingham, announces that he intends to issue a series of weekly health talks, to show the people what they must do and must not do in order to keep down disease and pestilence.

## ARKANSAS

**New Officers.**—Tenth Consular District Medical Society at Fort Smith, March 17: president, Dr. James A. Fergus, Rogers; secretary, Dr. Arthur F. Hoge, Fort Smith.

**Hospital Service.**—The St. Louis, Iron Mountain and Southern Railway has arranged to open an emergency hospital at Gurdon for the use of employees of the road.

**Hospital Notes.**—At the annual meeting of the Sparks Memorial Hospital Association, Fort Smith, Drs. George W. Moss, W. H. Johnson and T. J. Wright were elected directors. The erection of a home for nurses and families of patients at a cost of $10,000 was discussed.

## CALIFORNIA

**State Society Meeting.**—The forty-fourth annual meeting of the Medical Society of the State of California was held in Santa Barbara, April 14-16, under the presidency of Dr. Fitch E. Mattison, Pasadena, and the following officers were elected: president, Dr. Harry M. Sherman, San Francisco; vice-presidents, Drs. George A. Hare, Fresno, and Rexwald Brown, Santa Barbara; secretary, Dr. Phillip Mills Jones, San Francisco (reelected). San Francisco was selected as the meeting place for 1915. Dr. Robert A. Peers, Colfax, president of the State Association for the Prevention and Cure of Tuberculosis, presented a draft of a proposed legislative bill to appropriate $1,000,000 for the crusade against tuberculosis, $50,000 of which was to be available in July, 1915; $450,000 in July, 1916, and $500,000 in July, 1917. The association endorsed a movement for the establishment of a federal hospital in the Southwest for the study and treatment of tuberculosis.

## COLORADO

**Personal.**—Dr. Walter H. Wood, Greeley, fell 20 feet down an elevator shaft in the Greeley Hospital, April 12, fracturing his left arm and injuring his right arm and hip. ——Dr. Edward F. Lake, Denver, was operated on in Baltimore for carcinoma of the tongue, April 9.

**New Clinic at Denver.**—The new municipal clinic at Denver opened last month has been meeting with great success, and has handled more than one hundred patients a day. Dr. Asa Z. Hall, secretary and supervisor of the institution, is assisted in his work by the following staff: general medicine, Drs. Lorenz W. Frank and Asa Z. Hall; gynecology and surgery, Drs. Henry R. McGraw and Howard A. McKnight; laboratory, Dr. Benjamin H. Matthews and Paul S. Nice; pediatrics, Dr. George M. Blickendorfer; tuberculosis and diseases of the nose and throat, Drs. Orville D. Wescott, Louis H. Schultz and Johanna Gelien; and consulting staff, Drs. James M. Perkins and Oscar Hayes.

## GEORGIA

**Addition to Grady Hospital.**—The medical board of Grady Hospital has adopted resolutions asking an additional new building to be used as a municipal hospital, and to contain accommodations for pay patients. The question of an appropriation of $750,000 for the establishment of this hospital is to be voted on by the people of Atlanta.

**Medical Society's New Quarters Open.**—Medical Hall, the new home of the Georgia Medical Society, Savannah, was opened with formal ceremonies, March 31. The building is located on Drayton Street, overlooking Forsythe Park, and is a four-story brick structure. The first and second floors only, will be used by the society at present. Dr. Thomas J. Charlton, chairman of the house committee, presented the keys of the building to Dr. Justin L. Jackson, president of the society, who formally accepted them, after which Dr. J. Ewing Mears, Philadelphia, an honorary member of the society, spoke on "The Significance of the Construction and Opening of the Medical Hall of This Society."

**State Association Meeting.**—The sixty-fifth annual meeting of the Medical Association of Georgia was held in Atlanta, April 15-17, under the presidency of Dr. Ralston Lattimore, Savannah. Resolutions were adopted endorsing the public health bill and vital statistics bill to be brought before the legislature at its next session. The following officers were elected: president, Dr. William B. Hardman, Commerce; vice-presidents, Drs. Howard J. Williams, Macon, and Frederick D. Patterson, Cuthbert; secretary-treasurer, Dr. William C. Lyle, Augusta (reelected), and delegate to the American Medical Association, Dr. Edward C. Davis, Atlanta. The association was the guest of the Fulton County Medical Society at a banquet at Hotel Ansley, April 17.

## ILLINOIS

**Personal.**—Dr. Ernest W. Pothoff, Oak Park, sailed for Europe, May 2.——Dr. David C. Harmison, Havana, is reported to be seriously ill at his home.——Dr. John C. Griffith has succeeded Dr. George S. Duntly as local surgeon of the Toledo, Peoria and Western Railroad at Bushnell.

**New Officers.**—Rock Island County Medical Society at Rock Island, April 14: president, Dr. John W. Seids, Moline; secretary, Dr. William D. Chapman, Silvis.——Hancock County Medical Society at Carthage, April 9: president, Dr. William Blender; secretary, Dr. Samuel M. Parr, both of Carthage.——Gallatin County Medical Society at Equality, April 8: president, Dr. J. W. Bowling; secretary, Dr. A. B. Capel, both of Shawneetown.——Franklin County Medical Society at Benton, April 14: president, Dr. William H. Smith; secretary-treasurer, Dr. Edgar Austin, both of Benton.——Clark County Medical Society at Marshall, April 9: president, Dr. Lyman A. Burnside, West Union; secretary-treasurer, Dr. Levi J. Weir, Marshall.

### Chicago

**Personal.**—Dr. Cassius Clay Rogers has resigned from the faculty of the Chicago College of Medicine and Surgery.——Dr. B. Barker Beeson has sailed for Europe.

**Advocates Detention of Tuberculosis Patients.**—The forcible detention and treatment of ignorant victims of tuberculosis was advocated at the public conference held April 16 at the City Club, under the auspices of the Chicago Tuberculosis Institute.

**Crime Laboratory Opened.**—The municipal psychopathologic laboratory of Chicago was opened May 1, on the eleventh floor of the City Hall. Dr. William J. Hickson, Vineland, N. J., is head of the work, and Miss Mary M. Campbell has accepted the position of assistant director.

**Mortality and Morbidity Figures for First Quarter.**—The total number of deaths from all causes in Chicago during the first quarter of 1914 was 9,756, which is 277 fewer than for the corresponding period of 1913. This gives a per annum rate of 16.5 per 1,000 as against 17.4 for 1913. The figures as compared with those of 1913 show reductions as follows: scarlet fever, 353; diphtheria, 112; measles, 113; pneumonia, 225. The increases are as follows: diarrheal diseases, 107 under 2 years of age; congenital defects and accidents, 91; whooping-cough, 23; tuberculosis, 10. There was an increase of 209 deaths under 1 year of age, but a decrease of 371 between the ages of 1 and 5. Reductions over the period of 1913 in the number of cases of infectious diseases for the quarter were as follows: measles, 7,773; scarlet fever, 3,815; diphtheria, 926; small-pox, 26. Increases were as follows: whooping-cough, 1,423; chicken-pox, 259; mumps, 251; typhoid fever, 51. The above figures are from the Bulletin of the Chicago School of Sanitary Instruction. Attention is called to the fact that for the first time in the history of the city the number of cases of pneumonia reported exceeded the number of deaths from that disease during the quarter, the figures being 2,662 cases reported and 1,831 deaths. This is a gratifying improvement in the reporting of notifiable diseases.

## IOWA

**State Society Meeting.**—The sixty-third annual meeting of the Iowa State Medical Society will be held in Sioux City, May 13-15, under the presidency of Dr. Lee Wallace, Iowa City.

**New Sanatorium**—Scott County is erecting a county tuberculosis hospital near Davenport, at a cost of $71,000, which will be ready for occupancy June 1. The building is 138 by 80 feet, the grounds comprise twelve acres, and the institution will accommodate forty patients.

**Personal.**—Dr. George McC. Middleton has succeeded Dr. William A. Stoeks as city physician of Davenport.——Dr. John L. Klein has been elected health officer of Muscatine.——Dr. Thomas J. Williams, Hiteman, has gone abroad.——Dr. Eugene C. McMeel has been appointed postmaster of Delmar.

## KANSAS

**New Hospital.**—Halstead is to have a new three-story, fire-proof hospital, to cost $15,000.

**Pellagra in Kansas.**—The fourth case of pellagra in Kansas during the past year has been discovered at Atchison. Diagnosis was determined by the physicians of the Atchison County Medical Society. The patient came to Atchison from Winthrop a year ago.

## LOUISIANA

**Course on Educational Hygiene.**—During April a course of lectures on educational hygiene was delivered at the New Orleans Normal School. The first lecture was by Dr. Charles C. Bass, on "Malaria," the second by Dr. Otto Joachim, on "Hygiene of the Ear," the third and fourth by Miss Mary Realey, on "Social Phases of Hygiene," and the fifth by Dr. William W. Butterworth, on "Nutrition and Education."

**New Medical Society Organized.**—At a meeting at the Hotel Monte-Leone, New Orleans, April 15, the Pan-American Medical and Surgical Organization was organized. The following officers were elected: president, Dr. Stephen W. Stafford, New Orleans; vice-presidents, Drs. Joseph A. Estopinal, Arabi, and Everard W. Mahler, Charles V. Unsworth and C. Grenes Cole, New Orleans; secretary, Dr. Joseph J. Wymer, New Orleans, and treasurer, Dr. William T. Patton, New Orleans.

**Conference of State Health Officers.**—The State Health Officers of Louisiana held a conference in New Orleans, April 20, pursuant to the call of Dr. Oscar Dowling, president of the State Board of Health. As mayors of cities and towns and presidents of police juries (the community legislative body) in Louisiana are fiscal agents of health appropriations, they were invited. The number in attendance was large, every section of the state being represented. Two phases of local work were emphasized; the application of the law, and practical means of improving local service. Dr. William C. Woodward, health officer of Washington, D. C., and Surg. B. S. Warren, U. S. P. H. S., were present. Dr. Woodward discussed "The Functions of Legislation in the Conservation of Public Health," and Dr. Warren "The Effects of Industrial Conditions in the Protection of Diseases." Dr. Oscar Dowling presided.

**Conference on Betterment of Hygiene Among Negroes.**—Betterment of negro health was the subject of a conference of Southern Health and Educational Officers, held in New Orleans, April 24. The meeting was called by Dr. Oscar Dowling of the Louisiana State Board of Health. Five states and the District of Columbia sent delegates. Eight of the leading negroes of the South were present. To agree in practical measures for ultimate and immediate betterment was the purpose of the conference. Speakers and visitors were unanimous that the call was timely and that the need for concerted action is imperative. After lengthy discussion of many important topics resolutions embodying the sense of the convention as to pertinent and practicable measures were adopted as follows:

> That the responsibility of instituting and executing measures to improve sanitary conditions among the negroes is largely that of the white man; that the active cooperation of the more intelligent negroes should be asked and their services utilized as far as possible in executing the plans adopted; that one point of attack should be on prevailing insanitary housing conditions, the disposal of night soil and other wastes, provision of a wholesome and adequate water supply, ventilation, and light that each state and municipality obtain exact information as to the prevalence of tuberculosis, venereal and other diseases among negroes; that practical preventive measures applicable to local conditions be instituted; that the data gathered be transmitted to the local and state health officers; that instruction, definite and persistent, in the primary principles of health be given, especially by a program on health topics in every negro school in the state and sermons and talks on sanitation in every negro church at frequent intervals; that teachers be asked to emphasize the element of self control; that visiting district nurses be employed; that each state and city board of health be requested to take action to carry these recommendations into effect; that the American Medical Association, the American Public Health Association, the Southern Medical Association, the Southern Sociological Congress, the Southern Commercial Congress, the National Educational Association of America, the National Housing Association, the Federation of Women's Clubs, and other health and educational organizations, be requested to establish standing committees on the health of the negro.

The resolution committee consisted of Wm. C. Woodward, Washington, D. C.; James A. Hayne, S. C.; C. W. Garrison, Ark.; T. F. Abercrombie, Georgia; John C. Bell, Memphis; Herman Oechsner, Thos. A. Roy, La.; S. R. Mallory Kennedy, Florida; Oscar Dowling, La.

## MARYLAND

**Room Dedicated to Dr. Towler.**—A room in St. Luke's Hospital, Baltimore, was dedicated with appropriate ceremonies to Dr. Philip B. Towler, April 13.

**Fresh Air Society.**—At the annual meeting of the Fresh Air Society in Baltimore, April 14, the officers were reelected, and Dr. Armfield F. Van Bibber, Bel Air, made member of the board of directors.

**Presentment against Navy Surgeon.**—A presentment against Asst.-Surg. Ralph W. McDowell, of the Navy, on the charge of assaulting with intent to kill Frank Green, Jr., of Annapolis, was returned to-day by the Anne Arundel County grand jury. Surgeon McDowell promptly appeared before court and renewed bail for $1,000.

**Personal.**—Dr. Eugene McE. Van Ness, who was operated on about a month ago for appendicitis at the Union Protestant Infirmary, has recovered.——Dr. Van Den Berg, one of the European delegates to the International Surgical Congress in New York City, is reported to be seriously ill with pneumonia at the Hotel Belvedere, Baltimore.

**Dr. Henkel Asks for Investigation.**—Dr. Louis B. Henkel, Jr., of Annapolis, a former member of the State Board of Medical Examiners, who has been mentioned in affidavits bearing on the sale of advance questions for two medical examinations, has forwarded a communication to Dr. Herbert Harlan, Baltimore, president of the board, demanding an investigation. A thorough inquiry will be made and the board will take up the entire subject at its next meeting.

**Health Report.**—According to the weekly bulletin issued by the Department of Health last week, 238 persons died in Baltimore during the week. During the corresponding period of last year, 187 persons died, 245 in 1912 and 233 in 1911. Tuberculosis was the cause of more deaths than any other disease. There were six suicides and seven died as the result of accidents. There were forty-five deaths from pneumonia. The births reported were, total 256: white, 189, colored, 67; males, 116; females, 140.

**Stamping Out Typhoid.**—Health Commissioner Nathan R. Gorter has sent out a bulletin to all physicians in Baltimore calling their attention to the marked improvement in the number of typhoid cases and the lessened number of deaths from that disease since last December. Accompanying the explanation was a table which was prepared by both Dr. Gorter and his assistant, Dr. C. Hampson Jones, showing the number of typhoid cases and deaths for each month, beginning with the year 1909 and ending with March, 1914. The physicians are asked to help the department in the study of the disease.

**Campaign for Mercy Hospital.**—The campaign committee of Mercy Hospital recently held an enthusiastic meeting in the board rooms and took up the details of the "whirlwind" started April 22, which will be continued until May 5, when it is hoped the last of the $320,000 desired will be raised. Since the formal announcement preparations have been made for the sending out of more than 100,000 letters which will tell in detail the reasons why the management needs the $320,000; banners will be swung over the streets; there will be three electrically illuminated thermometers which will daily register the amount of money collected, and motorcyclists also will assist in the campaign by carrying streamers on their machines on Sunday.

## MASSACHUSETTS

**Personal.**—Dr. G. V. N. Dearborn has been appointed consulting physiologist to the Forsythe Dental Infirmary, and not consulting physician, as erroneously stated two weeks ago.

**Health Talks.**—The first of a series of booklets issued by Harvard University under the subject-head of "Health Talks," is by Dr. John Lovett Morse, Boston, "The Care and Feeding of Children." The second volume, by Dr. Otto Folin, on "Preservatives for Food, Their Use and Abuse," is now on the press. Additions to this series will follow in a short time.

**Hospital Staff.**—Announcement is made of the personnel of the staff of the new St. Elizabeth's Hospital, Brighton, which is rapidly nearing completion: supervisor and physician in chief, Dr. John R. Slattery; associate physician in chief, Dr. Thomas F. Harrington; physician, Dr. Michael J. Cronin; surgeon in chief, Dr. John W. Lane, vice Dr. William A. Brooks, resigned; surgeon, Dr. Edward A. Supple; chief of urologic department, Dr. Arthur L. Chute; orthopedic surgeon, Dr. Thomas F. Broderick, Jr.; obstetrician, Dr. Thomas F. Greene; roentgenologist, Dr. Patrick F. Butler; director of laboratory serum diagnosis, Dr. Andrew F. Dowing, and consulting obstetrician, Dr. Henry S. Rowen.

## MICHIGAN

**Personal.**—Dr. Rudolph J. E. Oden, Cadillac, sails for Europe, May 16.——Dr. Wilfrid Haughey, Battle Creek, read a paper before the Detroit Oto-Laryngological Society, April 21.——Dr. Otto T. Freer addressed the Detroit Oto-Laryngological Society, April 21, on "The Intranasal Operation for Chronic Empyema of the Frontal Sinus."

**Sanatorium Annex at Detroit.**—Building operations on the new unit of the Detroit Tuberculosis Sanatorium, for which $50,000 was collected in the recent campaign in Detroit, will be begun as soon as the contracts can be let.

**Measles at Kalamazoo.**—More than five hundred cases of measles were reported to the Health Department since February 1. For the week ended April 20, 112 cases were reported and there were 300 cases in the city at that time.

**Work on Receiving Hospital.**—Joseph A. Marks, president of the Detroit Poor Commission, turned the first sod at the site of the new receiving hospital at Detroit, March 25. The building will cost about $200,000, and is expected to be completed November 1.

**New Isolation Hospital for Ann Arbor.**—The New Isolation Hospital, for which Ann Arbor issued municipal bonds for $25,000 a year ago, is nearly completed. It is constructed on the bungalow type, is 103 by 40 feet, and will accommodate twenty-four patients.

**The April Bulletin.**—*Public Health*, the bulletin of the Michigan State Board of Health, for April departs somewhat from the usual program of papers on medical, hygienic and sanitary subjects and contains twelve papers of a sociologic nature, dealing chiefly with the family, the relation of parents and children, schools and school hygiene, sex teaching, etc. The papers are highly interesting and valuable and should prove of great popular interest. The bulletin contains in addition editorial matter, statistical tables, laboratory reports, etc., portraits, cartoons and information concerning the traveling exhibit of the board.

## MINNESOTA

**Personal.**—Dr. John H. Crowe has been elected health officer of Virginia.——Dr. Conrad A. Neumann, Lewiston, who has been ill with septicemia at Rochester, Minn., has returned home convalescent.——Dr. John S. Johnson, St. Paul, has started for Norway, taking with him the exhibits prepared by the Minnesota commission for display at the Norwegian Centenary Exposition, Christiania.——Dr. Oliver H. McMichael, Vernon Center, announces his retirement from practice. He expects to move to Minneapolis.

**Reorganization of State Board of Health.**—A reorganization of the laboratory, epidemiology and sanitary engineering divisions of the State Board of Health was perfected at a meeting held April 14. Hereafter there will be but two divisions, infectious diseases and sanitation, the work of the laboratory division being divided. Dr. Albert J. Chesley will retain his position as head of the division of infectious diseases, and in addition will take over the laboratory work having to do with diagnosis of diseases. Dr. Hugh H. Miller, in charge of the present laboratory division, and Prof. S. H. Bass, head of the sanitary division, will retire to devote their entire time to their teaching work in the University of Minnesota. The new sanitary division will be under the direction of H. A. Whittaker, assistant director and chief chemist of the laboratory division.

## MISSISSIPPI

**New County Society Publication.**—The Clarksdale and Six Counties Medical Society, comprising the counties in the northern part of the state, began in April the publication of a bulletin giving the news of the activities of the society and providing the members with information as to past and coming meetings. It is called the *Six Counties* and is to be published monthly. At present it consists of a four-page folder which contains a list of the members in 1914 with their addresses, a report of the March meeting, a number of announcements, editorial comment, etc., and is altogether a bright and snappy bulletin. It was established to supply a need for some means of communication between the officers and the members of the society other than the semi-annual meeting. It is edited by Dr. Thomas M. Dye of Clarksdale, secretary of the society.

## MISSOURI

**State Association Meeting.**—The annual meeting of the Missouri State Medical Association will be held in Joplin, May 12 to 14, under the presidency of Dr. Enoch H. Miller, Liberty.

**Hospital Association Organized.**—The Kansas City Hospital Improvement Association has been organized to discuss matters of interest to those intrusted with the care of the hospitals of Kansas City and to devise a better system of cooperation between the various hospitals. The members of the association at present are: Mr. A. C. Stowell, St. Luke's Hospital, president; Drs. R. E. Castelaw, superintendent of the General Hospital, secretary; Fred L. Woodell, superintendent of the German Hospital; J. Archie Robinson of Wesley Hospital; S. C. Fox, Missouri Pacific Hospital; Rev. A. W. Linquist, superintendent of Swedish Hospital; Noad Adams of the Baptist Hospital and J. W. Perkins of the University Hospital.

## NEW JERSEY

**Hospital News.**—A three-story brick and terra cotta structure is to be erected at Glen Ridge, opposite the present Mountainside Hospital. The building will accommodate 100 patients. The Board of Health of Paterson has decided to erect a tuberculosis pavilion at a cost of $15,000, to accommodate fifteen patients. A bungalow is also to be erected for the accommodation of the nurses.

**Hospital Staff Selected**—Dr. J. Alexander Browne, executive officer of the Paterson Isolation Hospital, has selected the following staff for that institution: Consultants—Drs. Henry Parke, J. William Atkinson, Emanuel L. Henion; dermatologist—Dr. Charles R. Mitchell; pathologist—Dr. William F. Gutherson; visiting staff—Drs. Henry E. Briody, Joseph V. Bergin, William J. Whalen, William H. Jacob, Theodore Bender, George J. Koch, Paul E. Rauschenbach and Orville R. Hagen.

## NEW YORK

**Personal.**—Dr. Frederick M. Meader has resigned as city bacteriologist of Syracuse, and has been succeeded by Dr. Oliver W. H. Mitchell, assistant professor of bacteriology and preventive medicine in the University of the State of Missouri, Columbia. Dr. Mitchell also succeeds Dr. Leverett D. Bristol as assistant professor of bacteriology.——Dr. Leverett D. Bristol, Syracuse, has resigned from the faculty of Syracuse University to take charge of the North Dakota State laboratory.——Dr. Horace M. Hicks, health officer of Amsterdam, was operated on for hernia at the General Memorial Hospital, New York City, April 16.——Dr. Edmund C. Boddy, for fourteen years city physician of Rochester, has resigned.

**Legislation at Albany.**—Governor Glynn has signed a bill appropriating $50,000 as an emergency fund for the Health Officer of the Port.——The Christian Science bill which proposed to allow Christian Science healers to practice under the Medical Practice Act of the State has been vetoed by Governor Glynn. In the veto he said, in part, that the bill would have opened the gates to all kinds of medical pretenders, who, as a matter of fact, treat the sick without the use of any drug or material remedy, and who, if this bill were approved, would swarm across our borders and pretend to practice medicine on our citizens.——Governor Glynn has signed the Walter's bill relieving pharmacists, apothecaries and druggists from some of the restrictions of the labor law so that the sick will not be compelled to rely on Sundays on the exclusive services of the proprietor for the whole twenty-four hours.——A bill designed to simplify the procedure necessary for the detention of weak-minded persons in state institutions has also been signed by Governor Glynn. This bill authorizes any judge of a court of record to determine the mental condition of a suspected person on the application of a relative, friend, parole, or school officer, the application to be accompanied by a certificate signed by two physicians. The governor at the same time approved the bill appropriating $4,000 for the expenses of a commission to investigate the care, custody, treatment, and training of the mentally defectives to recommend remedial legislation next year.

### New York City

**Fraudulent Advertising Punishable.**—A bill has recently been passed by the board of aldermen which provides that any one guilty of publishing an advertisement containing assertions, representations, or statements which are untrue, deceptive, or misleading, shall be subject to a fine of not less than $25. Steps are being taken by the Department of Health to make the same use of this law that has proved so effective in Chicago in a campaign directed against venereal quack advertising.

## NORTH CAROLINA

**New Sanatorium.**—Dr. Charles S. Minor and William L. Dunn, Asheville, have purchased 60 acres of land on the south slope of Mt. Pleasant, on which they will erect a sanatorium for tuberculosis, at an expense of about $250,000.

## OHIO

**Physical Examination of Employees Required.**—A system of physical examination of all employees of the Republic Iron and Steel Company, Youngstown, has been organized, and an examination will be made of employees, both in the mills and offices.

**State Association Meeting.**—The sixty-ninth annual meeting of the Ohio State Medical Association will be held at Columbus, May 5, under the presidency of Dr. George A. Fackler, Cincinnati. The oration on surgery will be delivered by Dr. Robert Abbe, New York City, and that on medicine by Dr. David L. Edsall, of Harvard Medical School.

**Personal.**—Dr. Sherman Leach, Columbus, is reported to be seriously ill at his home with pneumonia, following an attack of rheumatic arthritis.——Dr. Charles C. Dreyer has succeeded Dr. George L. Chapman as chief of staff of the district physicians of Toledo.——Dr. Jesse W. Hull has been appointed workhouse physician of Toledo.——Dr. Don C. Hughes, Findlay, who underwent an operation at the Holman Hospital, April 16, is reported to be making satisfactory progress.——Dr. Rufus C. Pennywitt, Dayton, assumed his duties as registrar of vital statistics of the Health Department, April 17.——Dr. George T. Haverfield, Uhrichsville, was seriously burned in a fire in his office, April 17, while attempting to save his negro attendant.——Dr. William C. Martin, Cleveland, has succeeded Dr. John Claypool, resigned, as physician of the Ohio State Sanatorium, Mount Vernon.——Dr. William S. Reed, Stockton, fractured both clavicles and three ribs in an automobile accident, April 11.

## OKLAHOMA

**New Building for State Hospital.**—The new building of the State Hospital, Vinita, will be completed July 1, and will accommodate three hundred patients.

**New Officers.**—Pawnee County Medical Society, organized at Hallett, March 31: president, Dr. Harman D. McFarland, Cleveland; secretary-treasurer, Dr. James C. Hawkins.

**Personal.**—Dr. Kelley D. Gossom, Custer, is recovering from an attack of appendicitis.——Dr. Alexander X. Campbell, Grandfield, has succeeded Dr. Hugh Scott, Dustin, as receiver for the United States Land Office, Guthrie.——Dr. Luther W. Troutt, Afton, was thrown from his automobile and seriously injured in a collision with a bridge rail, recently.——Dr. Luther Mathis, Fairview, was seriously injured by the overturning of his automobile near Guthrie, March 17.——Dr. and Mrs. Robert M. Howard, and Dr. and Mrs. Antonio D. Young, Oklahoma City, sailed from Boston for Europe, April 25.——Dr. Thomas S. Williams, Stilwell, who has been ill with small-pox, has recovered

## PENNSYLVANIA

**New Buildings for State Institution.**—New buildings are to be erected at the state institution for the Feeble-Minded and Epileptics, near Spring City.

**Personal.**—Friends of Dr. Joseph T. Rothrock, West Chester, state forestry expert, will tender to him a testimonial luncheon in Harrisburg, May 4.——Dr. Ellis M. Harvey, Media, has been elected president of the Media Borough Council.

**Medical Institutions.**—During May the Elkins Mémorial Hospital of Abington, Old York Road, will open for service, a substantial addition to the medical facilities of Philadelphia suburbs. The staff will include: Surgical—Drs. Duncan L. Despard, J. Dean Elliot and Damon B. Pfeiffer; consultants, Drs. Richard H. Harte and William B. Van Lennep; orthopedic—Dr. Arthur B. Gill; medical—Drs. Sumner Cross, Francois L. Hughes and Thomas Reading; consultants, Drs. Alfred Stengel and Clarence Bartlett; gynecologist, Dr. Floyd E. Keene; consultant, Dr. John G. Clark; obstetrician, Dr. Milton K. Neiffer; pediatrics—Dr. J. P. Crozer Griffith; laryngologist, Dr. J. Frederick Knauss; ophthalmologist, Dr. J. Frederick Herbert, and consultant, Dr. William C. Posey.

### Philadelphia

**Fraternity Banquet.**—The annual Interchapter banquet of the Phi Chi Medical Fraternity was held April 16, at the Hotel Walton. The chapters represented were those of the Jefferson Medical College, Medico-Chirurgical College, University of Pennsylvania and Temple University. The toastmaster was Dr. Theodore H. Wiesenburg. The guest of honor was Dr. Richard C. Cabot of Harvard University, and other speakers were Dr. William W. Babcock and Dr. George E. Price.

**Clean-Up Week.**—The final results of clean-up week have not yet been published, but fully 15,000 cubic yards of waste was taken from the districts where the warfare against disease-breeding dirt and fire-breeding rubbish was waged, on the second day, April 21. This amount was half as much again as that gathered on the first day. The normal force of rubbish collectors was augmented from 86 to 131 men. The teams and vehicles numbered 160. So great was the accumulation of trash that the Waste Reduction Company was swamped, and much of the material had to be taken to the city dumps instead of being utilized for its by-products.

**For and against Vivisection.**—A public meeting of the Philadelphia Pediatric Society will be held in the College of Physicians Building, Twenty-Second Street, above Chestnut, on Tuesday evening, May 5, 1914. The program will be devoted to "The Value of Animal Experimentation in the Diagnosis and Treatment of Disease in Children." "Its Value in Diagnosis" will be shown by Dr. Alfred Hand, Jr., of Philadelphia, and "Its Value in Treatment" by Dr. Henry Dwight Chapin, professor of diseases of children in the New York Post-Graduate Medical School. The purpose of the meeting is to give the Philadelphia public an opportunity to learn something of the value of animal experimentation to the life and health of its children.

At a meeting of the Board of managers of the American Anti-Vivisection Society, John R. K. Scott was retained as counsel and authorized to institute proceedings against all practitioners of vivisection whom he believes to be guilty under an opinion handed down recently by Judge Bregy.

In reply to a letter from the provost of the University of Pennsylvania, questioning the legality of certain experimental work now being carried on at the university, in the light of Judge Bregy's ruling, that operations which inflict pain on animals may be legally performed only with the object of benefiting the animals themselves, Samuel Dickson, chairman of the Committee on Law and Legal Relations of the Board of Trustees of the University of Pennsylvania, sent a letter disagreeing with the opinion of Judge Bregy. (See page 1423, this issue.)

April 22, at the meeting of the Philadelphia County Medical Society, representing 1,700 of the physicians of this city and vicinity, resolutions were adopted, affirming the full confidence of the society in the physicians being prosecuted by the Philadelphia Society for the Prevention of Cruelty to Animals.

## TEXAS

**State Association Meeting.**—The annual meeting of the State Medical Association of Texas will be held in Houston, May 12-14, under the presidency of Dr. Marvin L. Graves, Galveston.

**Quarantine Edict.**—The annual quarantine proclamation by the governor was issued March 27, declaring that quarantine be established along the Gulf Coast and Rio Grande border April 1, and continue until the edict is revoked.

**Green Crosses for Physicians.**—Because of the objection of the American Red Cross to the use of its insignia by others, an ordinance has been introduced before the San Antonio city council providing that physicians whose automobiles bear a green cross will be given right of way by traffic policemen.

**Societies Consolidate.**—The proposal of consolidation of the Fifth and Sixth District Medical Societies of Texas was accepted by the former organization at its semi-annual convention at San Antonio. The summer convention of the merged societies will be held at Corpus Christi, and the winter session at San Antonio.

**Hospital Notes.**—The Howard County Hospital Association has been organized at Big Springs with the object of building a modern and well-equipped hospital.——A fund of $20,000 has been set aside for the erection of a hospital at the Masonic Home, near Fort Worth.——Ground has been broken for the erection of the Industrial Bay Home, Houston.——The new Denison City Hospital was thrown open to the public for inspection, April 12.——The building committee in charge of the erection of the Fort Worth City-County Hospital has inspected and approved the completed building. It was formally opened last week.——The new Amason-Hargrave Hospital at Wichita Falls was formally opened March 24.

**Personal.**—Dr. William R. Talboy has been appointed Health Officer of Galveston, vice Dr. Frank N. Danforth, Texas City, resigned.——Dr. William I. Swangem suffered a loss of $5,000 by the burning of his building at Terrell, April 6.——Dr. John C. Silliwan, Palestine, has started for Vancouver, Wash., en route to China and Japan.——Dr. Sidney M. Lister has been elected president of the Board of Health, Houston.——Dr. Frank M. Mullins, Fort Worth, is said to be seriously ill as a result of a hemorrhage, March 28.——The office of Dr. George W. Creswell, Crosbyton, was destroyed by fire, March 26.——Dr. Quincy B. Lee has resigned as city bacteriologist of San Antonio.——Dr. Lamartine O. Dudgeon, Sweet Water, sustained a fracture of three ribs and concussion of the brain by the overturning of his automobile near Roscoe, March 26.

## WISCONSIN

**Dr. Vaughan Entertained.**—April 22 Dr. Victor C. Vaughan, Ann Arbor, Mich., was entertained at dinner by members of the medical profession of Milwaukee.

**New Officers.**—Washington County Medical Association at West Bend: president, Dr. Willibald J. Wehle; secretary-treasurer, Dr. S. Driesel, both of West Bend, both reelected.

**New Buildings for Sanatorium**—The contract has been awarded for the construction of three dormitories and a warehouse at the State Tuberculosis Sanatorium, Wales, to cost $25,200.

**Personal.**—Dr. George C. Ruhland, city bacteriologist of Milwaukee, has been appointed health commissioner, vice Dr. Frederick A. Kraft.——Dr. Kraft expects to spend several months in Europe.

**Ravenel to Go to Missouri.**—Dr. Mazyck P. Ravenel, professor of medical bacteriology in the University of Wisconsin, and director of the public health laboratory, has been appointed to a similar position at the University of Missouri, Columbia.

**Wisconsin Surgeons Hold Meeting.**—The Wisconsin Surgical Association held its first annual meeting at Milwaukee, April 22 and 24, under the presidency of Dr. Alfred H. Levings. The days of the meeting were taken up with clinics at the various hospitals, and in the evenings various papers were read and subjects of surgical interest discussed.

## GENERAL NEWS

**Students of Epilepsy.**—The annual meeting of the National Association for the Study of Epilepsy and the Care and Treatment of Epileptics will be held at the Hotel Belvedere, Baltimore, May 25, under the presidency of Mr. William C. Graves, Chicago.

**Death of Colonel Appel.**—News has just been received of the sudden death of Col. Daniel M. Appel, M. C., U. S. Army, chief surgeon of the Department of Hawaii at Honolulu, April 22. As a result of Colonel Appel's death, Lieut.-Col. Jefferson R. Kean is promoted to colonel; Major Charles Lynch to lieutenant-colonel, and Capt. John L. Sheppard to major.

**Bequests and Donations.**—The following bequests and donations have recently been announced:

College of Medicine of the University of Cincinnati, a medical endowment fund of $31,400, to be known as the Thomas Gibson fund, being the residue of will of Mrs. Frances W. Gibson.

Milford, Mass., Hospital, a permanent fund of $100,000, by the will of Gov. Eben S. Draper.

**Typhus Fever.**—According to *Public Health Reports*, April 17, since Nov. 19, 1913, nineteen cases of typhus fever have been discovered in immigrants arriving at Atlantic ports from Europe. Seven of the cases arrived at Providence from Marseilles and Naples and twelve at the New York quarantine, mainly from Southern European ports. Typhus became epidemic in Tokyo, Japan, and from March 20 to April 5, 1,750 cases were notified. The mortality has been about 12 per cent. The officers of the United States Public Health Service stationed at Tokyo immediately put into operation the United States quarantine regulations for ships and passengers clearing for the United States.

**Conference on Tuberculosis.**—The Mississippi Valley Conference on Tuberculosis, called by A. E. Kepford, state lecturer of the Department of Tuberculosis of the Iowa State Board of Control, and James Minnick, secretary of the Illinois State Association for the Prevention of Tuberculosis, will be held at Memphis, Tenn., at the time of the National Congress of Charities and Correction. The conference is called to bring together on a common platform all who are interested in the tuberculosis movement in the Mississippi Valley, and to discuss certain aspects of the problem; first, to bring about a better understanding and agreement in regard to other philanthropic work, especially in the relief of individuals and families who have become dependent because of tuberculosis; second, to arouse interest in extending tuberculosis propaganda in the rural districts of the Mississippi Valley, and third, to plan a tuberculosis law best adapted to the needs of this section of the country.

## FOREIGN NEWS

**Plague at Santiago.**—Under date of April 20, a fatal case of bubonic plague was reported to the State Department, from Santiago, Chile. Active measures were being taken to prevent the spreading of the disease.

**Plague in Havana.**—April 23 two new cases of bubonic plague were reported at Havana, one from Artesima, a small town a few miles from Havana. Up to date the cases number twelve and the deaths two. April 25 an American passenger on a boat from Mobile to New York was reported as held at Havana as a plague suspect under the direction of Surg. R. H. Crell of the U. S. P. H. S.

## CANADA

**Mining Accidents in Ontario.**—In the year 1912 there were 13,108 persons employed in the producing mines of Ontario, and 2,000 in non-producing mines. Of these 43 were killed, of which number 32 deaths were due to the fault or neglect of the workmen, or the managers of the works, and were preventable accidents. The total number of serious accidents was 238. The fatalities are classified as follows: To danger inherent in the work, 10, or 23.3 per cent.; defects in the mine workings, 8, or 18.6 per cent.; faults of fellow-workmen, 1, or 2.3 per cent.; fault of injured persons, 23, or 53.5 per cent.; unclassifiable, 1, or 2.3 per cent.

**Cancer in Ontario.**—Cancer continues to take a high toll of life in the province of Ontario. In 1912 there were 176 more deaths from this cause than in 1911. The deaths in the last ten years ran as follows: 1903, 1,156; 1904, 1,253; 1905, 1,224; 1906, 1,411; 1907, 1,329; 1908, 1,348; 1909, 1,597; 1910, 1,587; 1911, 1,602; 1912, 1,778. Cancer is the third most active cause of death in that province, organic heart disease being the first and tuberculosis second. As the total mortality in Ontario in 1912 was 32,150, the percentage of cancer deaths was 5.53 of the total deaths. There were 150 deaths from cancer of the buccal cavity; 570 from cancer of the stomach; 258 from cancer of peritoneum, intestines and rectum; 159 from cancer of the female genital organs; 116 from cancer of the breast; 11 from cancer of the skin, and 514 from cancer of other organs not specified.

**Personal.**—Dr. John Ferguson, Toronto, editor of *The Canada Lancet*, has been elected president of the Canadian Fraternal Congress; Dr. William S. Harrison, Toronto, vice-president, and Dr. Thomas Millman, Toronto, chairman of the medical section.——Prof. J. George Adami, McGill University, Montreal, has been reelected president of the City Improvement League.——The Hon. Dr. Albert R. Pyne, Minister of Education for Ontario, was recently presented with a solid silver tea service by his colleagues in the legislature for his professional attention to the Prime Minister, Sir James Whitney, during his recent severe illness.——Dr. Bruce L. Riordan, Toronto, has been elected president of The Aesculapian Club; Dr. George A. Bingham, vice-president; Dr. Edmund E. King, treasurer, reelected; Dr. George Elliott, secretary, reelected.——Dr. Alexander Primrose, Toronto, has resigned from the professorship of medicine and surgery in the Royal College of Dental Surgeons, Toronto. ——Dr. William Goldie, Toronto, has been appointed director of the medical clinic of the out-door department of the Toronto General Hospital.——Dr. Harvey Clare, assistant medical superintendent of the Toronto Hospital for the Insane, has been appointed demonstrator in psychiatry in the medical faculty of the University of Toronto.

## CANAL ZONE

**No Plague on Board the "Aysen."**—An examination of a reported case of bubonic plague on board the steamship *Aysen*, held in quarantine at the Culebra Island station, was conducted April 10 by Dr. Samuel T. Darling, chief of Ancon Hospital laboratory and member of the board for the diagnosis of infectious diseases, with negative results. The chief health officer and the chief quarantine officer were present during the examination. Bacteriologic examinations of material obtained at the time of examination were also negative for plague.

## LONDON LETTER

London, April 17, 1914.

### Royal Commission on Venereal Diseases

At the twenty-sixth meeting of the Royal Commission on Venereal Diseases Dr. Douglas White submitted an estimate of the prevalence of venereal diseases in the United Kingdom. No direct statistical basis is available, but from a consideration of the existing statistics regarding venereal diseases in this country, and a careful comparison (in which an attempt was made to allow for difference in conditions) with the estimate which has been made as a result of a statistical inquiry in Prussia, Dr. White arrived at the conclusion that there were every year 122,500 new cases of venereal disease in London and 800,000 new cases in the United Kingdom. He computed that of the 800,000 new cases 114,000 would be syphilis and the remaining 686,000 gonorrhea and chancroid. From these figures he deduced that there must be in the United Kingdom about 3,000,000 syphilitics. As regards syphilis Dr. White compared these results with the estimate obtained by assuming that a certain percentage of cases of syphilis find a conclusion in general paralysis or locomotor ataxia. The figures obtained from the results of notification in Denmark led to the conclusion that in that country rather less than 2.5 per cent. of syphilitics died from general paralysis. In the United Kingdom there are about 2,600 deaths annually from general paralysis and about 700 deaths from locomotor ataxia. If it may be assumed that 3 per cent. of cases of syphilis result in deaths from these diseases, the conclusion is reached that there are about 111,000 syphilitic infections annually. This figure Dr. White compared with the 114,000 fresh infections estimated by the indirect method already mentioned. Passing to the means of combating venereal diseases, Dr. White said that prevention would depend on two elements, facilities for treatment and education. He regarded ignorance of the public as the root factor in the spread of venereal disease. Adolescents of both sexes should be instructed in sex hygiene. At schools a course of lectures might be given by physicians, and a similar course with special reference to disease and the need for early treatment might be arranged. In addition the government should employ physicians and possibly some specially instructed laymen to give lectures to employees at large factories; for girls, women lecturers should be employed.

### "The Family Encyclopaedia of Medicine"

The profession has been aghast at the issue to the public of a work entitled "The Family Encyclopaedia of Medicine" with the names attached to it of thirty of the most eminent consultants of the day, which have been published as a display advertisement in the daily press and even on boards carried by "sandwich-men." According to the advertisement "the work thus bears the stamp of the highest authority and those who consult it may do so with full confidence that they will find in its pages a reflection of the best medical opinion of the day. The fortnightly parts will cover the whole field of Medicine, Surgery, Diseases of the Skin, Diseases of Women and Children, Diseases of the Nose, Throat and Eye, and will give also much valuable information on Diet. Exercise, Sanitation and other kindred subjects. No household should be without a work of such permanent value, and no household need be without a work which costs so little as sevenpence a part." The work has been extensively reviewed by the lay press and in some cases the public has been informed that the eminent author of a certain section is just the person to consult for the particular malady. Naturally the question was asked, "If a humble physician is subject to penalties for advertising what is to be done in the case of these eminent persons?" The explanation then was given. Some enterprising publishers, well known for supplying blatant but popular journals, engaged a physician to write the encyclopedia. Desiring the assistance of authorities on the various branches of medicine, he submitted to them the proofs for revision. It appears that they gave their assistance merely to oblige him without fee or reward and did not authorize the use of their names. While the physician in question was ill and absent from London, the names were published with the first part of the work. By their request the publishers have undertaken not to issue their names with the subsequent parts. Such is the explanation given of this "accident." But if accident it be it seems to have been a very profitable one for some of the persons concerned.

## PARIS LETTER

Paris, April 10, 1914.

### The Fourth Centenary of Vesalius

April 2, at the Sorbonne, Dr. Tricot-Royer called a conference under the auspices of the Société des Amis de l'Université de Paris to consider the subject of the fourth centenary of Andreas Vesalius, the great anatomist, who was born in Brussels in 1514. At the time when other children dream of toys, nothing attracted Vesalius but butcher-shops. He dedicated his modest savings to the purchase of the bodies of animals, which he examined with curiosity. Later it was human anatomy that he desired to comprehend. In the face of every risk, he stole the bodies of executed criminals. For dissecting a woman in lethargy, the Inquisition condemned the great anatomist to make a pilgrimage to Jerusalem. On his return from the Holy Land, he was shipwrecked and cast on the island of Zante, where he died in 1564. The intention is to raise a monument to the memory of Vesalius on this very island, next August, under the auspices of the Belgian government.

### Death of Dr. Conor

Dr. Alfred Conor, assistant director of the Institut Pasteur de Tunis, has just died as the result of a slight wound which he received in the course of an experiment on a guinea-pig, which brought on a sickness of long duration, the nature of which could not be determined. March 22, as a result of a special decree, he received the cross of the Legion of Honor on his death-bed. A collaborator of Dr. Charles Nicolle, Dr. Conor took a very active part in the work of the former in the vaccine therapy of whooping-cough (The Journal, July 19, 1913, p. 209), and in the intravenous inoculation of man by means of dead or living typhoid bacilli, etc.

### The Retirement of Dr. Jules Boeckel

At the meeting of March 25, the Société de chirurgie de Paris elected as honorary member, without his having been a candidate, Dr. Jules Boeckel of Strassburg, on the occasion of his retirement from the hospital. Remaining in Strassburg after the war of 1870-1871, Dr. Boeckel, as surgeon of the municipal hospital, had an exceedingly active career. Since 1895, as corresponding member of the Académie de médecine de Paris, he presented the major part of his scientific work before the French scientific societies. For forty years he directed the *Gazette médicale de Strasbourg*, and during the twenty-eight years from 1870 to 1898 it was the only journal in the annexed provinces, which was printed in the French language.

The desire expressed by Dr. Boeckel to give his services free to the municipal hospital of Strassburg for four years, so that he might celebrate his fiftieth year there, was refused. Among the Alsacians much indignation was manifested at this refusal, which was explained as the tendency of the authorities to extirpate everything which would serve to recall the French traditions; therefore, the news of his election as an honorary member of the Société de chirurgie de Paris was received as a consolation.

### Compulsory Antityphoid Vaccination in the Army

The *Journal officiel* has just published the law making the antityphoid vaccination of the soldiers of the standing army compulsory. In response to the request of a deputy, Dr.

Doizy, the application of the law was defined so as to leave the army physicians free to use their judgment in vaccinating or not vaccinating according to the suitability of the case.

### Personal Mention

March 29, at the Beaujon Hospital, the friends and fellow-workers of Dr. G. Bardet, director of the general hydrology laboratory of the Collège de France, presented him with a medal, struck in his honor. The twenty-fifth anniversary of Dr. Bardet's general secretaryship of the Société de thérapeutique was also celebrated.

The death is reported of Dr. C. Vanlair, former professor of internal pathology at the Faculté de médecine de Liége, and former member of the Académie de médecine de Paris.

## BERLIN LETTER

Berlin, April 16, 1914.

### Friedmann's Tuberculosis Remedy

In the current issue of the *Deutsche medizinische Wochenschrift* appear several articles on the Friedmann remedy.

#### EXPERIENCES OF BRAUER IN DETAIL

The first is from the pen of the director of the Hamburg Hospital, Professor Brauer. It contains a thorough description of the experiences of which Brauer gave an account in a few words at the congress of balneology, as reported in a previous letter (The Journal, April 18, 1914, p. 1268). From the present extensive publication it appears that in the Eppendorf Hospital since September, 1913, eighteen patients in all were treated according to the Friedmann method, the patients being in the two wards for internal medicine and in the children's section. In addition, facts are stated which have been obtained from Dr. Treplin, the head physician of the Hamburg Marine Hospital at Salenburg near Cuxhaven. It is quite noteworthy and important that the injections for the most part were made by Friedmann himself, so that the favorite objection that technical mistakes are responsible for the unfavorable results does not apply. Moreover, Brauer himself as well as his coadjutors have received personal instruction in Friedmann's institute in Berlin. The results of the observations are summarized as follows: Very severe reactions were repeatedly observed following the intravenous injection. In three cases, very threatening conditions resulted. Focal reactions at the site of the tuberculous process were not observed with certainty. In one patient who had been treated by another physician, Brauer punctured the tender point of injection and cultivated staphylococci from the tissue fluid. In none of the cases treated did the bacilli disappear from the sputum. The temperature and body-weight were not influenced in any notable way by the treatment. In two patients, fresh febrile attacks in the lungs were observed from six to seven weeks after the injection. In one female patient a rapid aggravation of the condition followed this attack, and the patient died from numerous hemorrhages. Three children with surgical tuberculous glands and five children with tuberculosis of the lung, bone and joints were not affected. Brauer comes to the conclusion that these trials have led to a result thoroughly unfavorable to the Friedmann remedy, and that they confirm the adverse judgment which was passed on the remedy by capable American physicians.

#### RESULTS IN ORTHOPEDIC CASES

Sanitary Councilor (Sanitätsrath) Gaugele reports thirty-two cases of children treated orthopedically at his home for cripples at Zwickau. In twenty-one cases there occurred marked abscess formation which in part produced enormous quantities of pus. In many cases the suppuration began many weeks after the injection. One child died from miliary tuberculosis, but it is questionable whether this unfavorable result can be referred to the remedy itself. In another case, Gaugele has no doubt that the child was brought to the brink of the grave by the injection. The remedy has hitherto not freed the body from the tuberculous poison. All the children treated gave a strong positive reaction by von Pirquet's test. So far no change in the condition of the bone or the joints can be seen in the Roentgen pictures. The treatment was first begun in the middle of December.

#### TREATMENT OF LUPUS

The dermatologist, Dr. Brauer of Danzig, reports his results with the treatment of lupus. In all cases he was able to demonstrate a local reaction which was less marked in the circumscribed lupus infiltrations and was never observed in the lupus nodules imbedded in the firm cicatricial tissue. Moreover, the improvement which in some cases was very striking and began on the third day after the injection, ceased soon after. In many cases the improvement continued only from ten to fourteen days and in no case longer than three weeks. The improvement was always followed after a few weeks of apparent inactivity by a renewed aggravation. In no case could the therapeutic result obtained six weeks after the injection compare with those which could be secured by local treatment in the same time.

#### BACTERIOLOGIC CONTAMINATION

The assistant, Dr. Biermann, from the first medical clinic of the Charité, reports that he found bacteriologic contamination in one ampule of the remedy but that the staphylococci did not prove to be pathogenic. But he also emphasizes the fact that the Friedman remedy is not at all free from objection, for the first demand to be made of a preparation that is to be used for the treatment of the sick by injection must be that it is free from bacterial contamination.

#### GENERAL OPINION OF REMEDY IN GERMANY

If one adds to these statements the unfavorable opinions which various orthopedists have expressed regarding the Friedmann remedy at the congress of German orthopedists now sitting in Berlin, he certainly cannot be suspected of ill will if he draws the conclusion that a very unfavorable impression has been made by the articles hitherto published in Germany, and while Friedmann in his answer to the articles of Vulpius and Laubenheimer asserted that 35,000 patients had been treated already with this preparation, it is likely that from now on the number will grow very slowly. There can scarcely be a doubt that in the near future other unfavorable experiences will be published.

### Meeting of the German Tropical Medicine Society

At the meeting held in Berlin, April 7-9, the following lectures were of general importance:

Staff-Surgeon Rodenwaldt discussed the etiology of bacillary dysentery. According to him, two varieties must be sharply separated: first, the Kruse-Shiga bacillus, which shows a lively molecular movement, is Gram-negative and diffuses in the culture the odor of semen, and in carbohydrate mediums shows certain peculiarities, and second, the groups of the bacillus of Flexner, the Y bacillus or the bacillus of Strong. In the dysentery caused by the first group of bacilli there is a mortality of 50 per cent., while in that caused by the second group, it is only 5 per cent. Bacillary and amebic dysentery may occur together. In the outer world, dysentery bacilli are perishable. The bacilli carriers but not the water-sources are dangerous. Rodenwalt estimates the rôle of the fly in spreading the bacilli as small.

According to the experience of Ruge, the Kruse serum is active in new cases but fails in older ones. In amebic dysentery the emetin method (from ⅔ grain to 2 grains) is especially advantageous.

In the discussion of the emetin method, opinions were divided. Plehn recommended calomel, if necessary, together with bismuth; Ziemann, Carlsbad salt, if necessary, with bismuth. Schilling of Berlin reported the success which he had had with immunizing against trypanosome infection and prefers to immunize with killed trypanosomes. Ziemann has instituted experiments in cultivating *Trypanosoma gambiense.* Frosch and Knuth believe that in the artificial trypanosomiasis of horses a combination therapy of salvarsan, sodium salicylate and ethylhydrocuprein promises successful results. Kuhn made a report on the sleeping-sickness in the western part of Africa.

### Personal

Bethe, professor of physiology at Kiel, has accepted a call of a similar nature to Frankfort-on-the-Main.

Privat-Docent Dr. Reiter of Königsberg, has been called to Berlin to take the place of division manager at the Hygienic Institute.

### Prize Offer for an Essay on the Climate of German Southwest Africa

The committee for the sending of consumptives to German Southwest Africa has offered a prize for the best essay on the subject, "What Significance Has the Climate of German Southwest Africa for Tuberculosis?" A prize of $720 (3,000 marks) has been assigned. Only those applicants can compete who were or are in practice in German Southwest Africa. The judges are Professor Gaffky in Hanover, Surgeon-General Professor Steudel of the Imperial Colonial Commission and Ministerial Director Kirchner of Berlin.

### The Work of One Berlin Insurance Company During 1913

Over 60.000 insured persons or their dependents were cared for during the year 1913 by the Landesversicherungsanstalt Berlin. In order to diminish the dangers of infection with tuberculosis, about 17,000 workmen's families in Berlin are under observation by one of the tuberculosis stations established for this purpose. Here fully 25,000 medical examinations were made; 350 families received assistance in paying their rent, amounting to about $5,000 (20,000 marks) and, in addition, there were provided 235 hospital beds for adults and 22 for children. Over 37,000 visits in the families of consumptives were made by the twelve visiting nurses. In addition to this prophylactic activity, the treatment of the insured sick was vigorously carried out during the year. Altogether, this company has cared for more than 12,000 men and women, fully 2 per cent. of the entire working population of Berlin. Of these fully half were consumptives. For continuing this work on a still larger scale, the company has appropriated nearly $1,000,000 (4,000,000 marks) for 1914.

## VIENNA LETTER

VIENNA, April 7, 1914.

### Suggestions to Diminish the Number of Medical Students

As has been mentioned, the constant increase of students taking up the medical curriculum has caused much anxiety, both in the profession as a whole and in the teaching institutes of the Vienna University. The former see a severe menace to the profitable outlook of medicine, if the increase continues. The medical faculty is unable to cope with the number of applicants and all the scientific institutes are crowded so that the students can hardly follow up their studies. For instance, in the last year, there were only 116 dead bodies at the disposal of the two anatomic institutes. Over 700 first-year students, apart from those who were more advanced in the studies, were awaiting their turn in the dissecting-halls to dissect all the organs. Various attempts have been made to decrease the influx of students to the medical occupation. Warnings addressed to the head teachers and instructors in the schools were published in the daily papers. The financial outlook was discussed in the daily and weekly papers, showing how unsatisfactory it is. But, on the other hand, political parties opposed the idea of decreasing the number of students, as for special reasons they wanted intelligent men.

Therefore, the Vienna Medical Society nominated a special committee to suggest means for obtaining the desired effect. This committee has just published its opinion. It is based on the idea that out of the odd 12,000 practitioners in Austria alone 500 fall out yearly, either from death, or by retiring, but surely the actual loss is smaller by from 300 to 350. To keep up the present percentage of doctors to the population, about 500 promotions yearly to the degree of M.D. would be sufficient. In 1909-1910 this limit was reached, and in 1912-1913 it was 636. As the number of first-year students has increased by more than 50 per cent. since 1908, the number of yearly promotions will increase to 1,200 in the course of three or four years.

The committee has suggested that the present very low costs of the medical course be increased to double the present rate which is about 50 cents per weekly hour and thus bring it to the level of the rates in Germany. Furthermore, with the exception of the native Viennese and those from upper and lower Austria, only those students should obtain admission to the Vienna University who come from countries which have no universities. None of these suggestions apply to postgraduate work or to students from non-European countries. A suggestion made by Professor Hochenegg is worthy of consideration. He suggests that all future students of medicine should have a preliminary year's work in biology, chemistry and physical science. An examination would follow which would decide whether or not they were fit to take up the medical curriculum. Only a limited number of scholarships would be open, and students coming from certain countries could be rejected, if they have a university in their own country. By these means the number of students would rapidly diminish, at least in Vienna, and we would also obtain selected material for taking up the medical career, much to the benefit of the profession and its scientific standard. For the winter term of 1914 the committee suggests that permission should be granted to fix the number of entries until a working method has been devised. These suggestions are now offered for public discussion to those whom it may concern, so as to determine what would be the best plan of action.

### An Interesting Decision of a Law-Court on a Wrong Diagnosis

In the hearing of a case for alleged malpractice the judge made an interesting statement which is worthy of recording. A patient injured his limb by a fall from a scaffold and was brought to a public hospital. He was examined and pronounced to be suffering from a distortion of the ankle-joint, and treatment was given accordingly, including cold, wet compresses to the painful parts. Roentgenoscopy revealed nothing serious. The patient's condition, however, was not much improved, and he left the hospital of his own accord. He continued at the outpatient's department, and also interviewed another surgeon without much benefit. Then he went to another hospital, where his condition was diagnosed as a fracture of the lower portion of the tibia and fibula, as was visible in the roentgenogram. But he was told that, owing to the lapse of time, nothing could be done for him without an operation, to which he did not consent. He then sued the first hospital and the first surgeon for damages, because he had received the wrong treatment, owing to a false diagnosis. In the course of the hearing, evidence from medical experts was given to the effect that during the first few days after receiving such an injury, it might be impossible to ascertain the exact nature of the existing pathologic conditions. After repeated adjournments and appeals, the High Court of Justice took the matter over. The judge gave a verdict for the defendants and said that "if a doctor examines a patient with all care, diligence and knowledge at his disposal, he is free from blame, even though he arrives at a very wrong diagnosis." By this decision it is hoped that the frequent claims for damages arising out of alleged wrong diagnoses will become less customary.

### The New Income-Tax and the Medical Profession

A few weeks ago, a new law was passed which regulates —this means increases—the income-tax of our country. Severe fines are to be imposed in the future for all knowingly false declarations of incomes. The officials ascertained means to control nearly every class of tax-payers in this respect. Lately, the private hospitals and sanatoriums, in which it is customary with us to operate on the better class of patients, have been forced by the law to disclose to the officials the names of the surgeons who have used the operating-rooms of the institute, the number of operations performed by them, the fees they charged for the work, and all other items useful for obtaining a fair insight into the financial connections between the institute and the surgeons. The sanatoriums now fear that the surgeons will do more operations in their private surgeries and less in the institutes. In another respect, however, the law has been liberal with the profession. It permits larger deductions, about 25 per cent. of the total income, but the percentage of the rates has been increased by about 3 per cent. Another disadvantage of the new system is threatening, as the officials may demand the right to inspect the business-books, which category also includes the day-books and entries of the doctors. This involves a breach of professional secrecy, and action is now being taken by representative bodies of the medical profession against such a possibility.

### Large Grants for Medical Purposes by Lay Philanthropists

"The law of the series" has been verified recently by the fact that within a few days of one another, three men gave large sums of money for charitable purposes, an unusual way of spending money, with us at least. A Mr. Mendel gave $60,000 (300,000 kronen) for the enlargement and extension of the institute for the care of mothers and babies; Mr. Silberer gave large areas in a favorable health resort, now worth over a million kronen, and sure to be worth much more very soon, to be sold in favor of nine charitable institutions in Vienna (the ambulance corps, children's hospitals, cancer hospital and others), and now a Mr. Frankel has given a large country seat, together with a sum of $600,000 (3,000,000 kronen), to the Wilhelminen Hospital to enable poor children, requiring fresh air after disease, such as measles, scarlet fever, diphtheria and the like, to be kept there long enough to be cured. This gift will be most welcome to the Children's Hospital, which received it, as it will end the necessity of dismissing the children to their poorly ventilated homes, where they are liable to become infected with tuberculosis. Now light, pure air and good food are at the disposal of the patients, thanks to a generous tailor, who himself was never a father.

## Marriages

Chauncey Wyckoff Howell, M.D., Littleton, Ill., to Miss Mary Augusta Griswold of Princeton, Ill., April 29.

Lawrence Bradley Raridan, M.D., Brookston, Ind., to Miss Hazel Monger of Greenfield, Ind., April 8.

P. A. Surg. Matthew H. Ames, U. S. N., to Miss Harriett Rebecca Caulkins of Berkeley, Cal., April 22.

Edward Francis Washburn Bartol, M.D., Milton, Mass., to Miss Ethel Chandler of Boston, April 15.

Neil Mackay Gunn, M.D., Chicago, to Miss Helen Davis of Minneapolis, Minn., April 18.

## Deaths

**Chesley Daniel, M.D.** Tulane University, New Orleans, 1872; a member of the Mississippi State Medical Association; and Tri-State Medical Association of Mississippi, Arkansas and Texas; for nearly forty years a practitioner of Holly Springs, Miss.; at one time a member of the State Board of Health, and Health Officer of Marshall County; local surgeon of the Frisco System; who fell in February, fracturing his hip, died at his home in Holly Springs, March 2, from heart disease, aged 64.

**James Sykes Ely, M.D.** Medical College of Ohio, Cincinnati, 1862; a pioneer practitioner of Belmont County, Ohio; assistant surgeon and surgeon of the One Hundred and Twenty-Sixth Ohio Volunteer Infantry during the Civil War; one of the organizers and president of the National Bank of Barnesville, and one of the founders of the Barnesville Gas Company; who fractured his hip a short time ago, died at his home in Barnesville, Ohio, April 10, from senile debility, aged 81.

**Frederick Llewellyn Hovey Willis, M.D.** New York Homeopathic Medical College, New York City, 1865; for many years a Unitarian minister in Michigan; one of the founders of the altruistic colony, Brook Farm, Fruitlands, Mass., and said to have been the original of the character of "Laurie" in Louisa M. Alcott's "Little Women;" died at the home of his daughter in Rochester, N. Y., April 12, aged 85.

**James Scott Todd, M.D.** Jefferson Medical College, 1869; a member and once president of the Medical Association of Georgia; emeritus professor of materia medica and therapeutics in Atlanta Medical College; a Confederate veteran; first assistant surgeon-general of the United Confederate Veterans; physician to Wesley Hospital, Atlanta; died at the home of his daughter in Atlanta, April 10, aged 66.

**J. Y. Hitt, M.D.** University of Louisville, Ky., 1852; the oldest practitioner of Greensburg, Ind.; surgeon of the Seventeenth Indiana Volunteer Infantry, and later of Wilder's Brigade during the Civil War; for thirty years local surgeon of the Big Four System in Greensburg, Ind.; died in his apartments in that city, April 14, aged 82.

**William Carden Cousens, M.D.** McGill University, Montreal, 1882; F.R.C.P., F.R.C.S., Edinburgh, 1882; one of the best-loved physicians of Ottawa, Ont.; well-known also as a sportsman, musician and philanthropist; one of the founders of and chief physician to St. Luke's Hospital, Ottawa; died at his home, April 12, aged 59.

**James Burton McFatrich, M.D.** Bennett Medical College, Chicago, 1884; Hahnemann Medical College, Chicago, 1885; who held various public offices and who is said to have amassed a fortune in the manufacture of the patent medicine, Murine; died at his home in Chicago, April 26, from heart disease, aged 52.

**Allan Foster Barnes, M.D.** Harvard Medical School, 1902; a Fellow of the American Medical Association; city bacteriologist of Cambridge, Mass.; visiting surgeon to the Cambridge Hospital; died in the Massachusetts General Hospital, Boston, March 12, from the effects of an abscess of the throat, aged 38.

**Ferdinand J. S Gorgas, M.D.** University of Maryland, Baltimore, 1863; formerly dean of the dental department of the University of Maryland; died at his home in Baltimore, April 8, aged 80.

**James Robert Reitzel, M.D.** University of Tennessee, Nashville, 1892; a Fellow of the American Medical Association, and a highly esteemed practitioner of High Point, N. C.; was instantly killed, April 17, by the overturning of his automobile, while en route to Greensburg, N. C., aged 48.

**Warren H. Outland, M.D.** Eclectic Medical Institute, Cincinnati, 1873; Hahnemann Medical College, Chicago, 1882; Pulte Medical College, Cincinnati, 1884; formerly mayor, councilman, township clerk and village clerk of Bellefontaine, Ohio; died at his home, January 24, aged 72.

**George Rite Kinne, M.D.** Syracuse, N. Y., University, 1876; a member of the Medical Society of the State of New York; coroner of Onondaga County since 1910; who was operated on at the Hospital of the Good Shepherd, Syracuse, March 13; died at his home in Syracuse, April 15, aged 60.

**Howard Lewis Pratt, M.D.** Rush Medical College, 1878; a member of the Illinois State Medical Society and Fox River Valley Medical Association; a member of the staff of the Sherman and St. Joseph's hospitals, Elgin, Ill.; died at his home in that city, April 13, aged 64.

**Ernest August Sellhausen, M.D.** George Washington University, Washington, D. C., 1874; a Fellow of the American Medical Association; for six years surgeon to the Austrian Embassy in Washington; died at the home of his sister in that city, April 14, aged 61.

**Benjamin W. Kimball, M.D.** Medical School of Maine, Brunswick, 1857; a resident of Minneapolis since 1869; a specialist on diseases of the eye and ear; died at his home, April 11, aged 85.

**George Wallace Dodge, M.D.** Northwestern University Medical School, Chicago, 1873; a veteran of the Civil War; died at his home in Menasha, Wis., April 6, from pneumonia, aged 72.

**Magnus L. Julihn, M.D.** University of Georgetown, D. C., 1866; a practitioner of Washington, D. C., until 1911, died at the home of his daughter in Alameda, Cal., April 4, aged 76.

**William K. Armstrong** (license, Indiana, 1897), a practitioner of Miami County, Ind., since 1881; died at his home in Peru, Ind., March 30, from cerebral hemorrhage, aged 60.

**Henry H. Carpenter, M.D.** Albany, N.Y., Medical College, 1859; surgeon of volunteers during the Civil War; died at his home in Lawrenceville, N. Y., March 30, aged 77.

**John B. Hoyer, M.D.** University of Buffalo, N. Y., 1881; at one time president of the village of Middleport, N. Y.; died at his home in that place, April 3, from nephritis.

**Franklin J. Gilson, Jr., M.D.** University of Texas, Galveston, 1904; of Brackettville, Tex.; died at the home of his father in Calvert, Tex., April 5, aged 32.

**Ransom Dunn Melvin, M.D.** Rush Medical College, 1884; for twenty-three years a practitioner of Parker, S. D.; died at his home in that place, April 4.

**Isaiah M. Maxwell, M D.** College of Physicians and Surgeons, Keokuk, Ia., 1889; died at his home in Excelsior Springs, Mo., March 16, aged 45.

**Phillip A. Dent, M.D.** University of Louisville, Ky., 1858; and a practitioner of Maysville, Mo., since that time; died at his home, April 7, aged 78.

**John David Stookey, M.D.** Washington University, St. Louis, 1910; died at his home in Smithton, Ill., April 8, from malignant disease, aged 26.

**Abel Brown Applegate, M.D.** University of Louisville, Ky., 1870; died at his home near Kosmosdale, Ky., April 1, from locomotor ataxia, aged 63.

**Leonidas V. Winston, M.D.** Bellevue Hospital Medical College, 1866; died at his home in Knightstown, Ind., April 1, from pneumonia, aged 69.

**Walter Everett Scott Preston, M.D.** Dartmouth Medical School, Hanover, N. H., 1888; died at his home in Newfield, Me., March 15, aged 53.

**Hiram E. Johnson, M.D.** Castleton (Vt.) Medical College, 1857; founder of Weston, Ill.; died at his home in Fairbury, Ill., April 6, aged 79.

**James A. Harrison** (license, Indiana, 1897), postmaster of Spurgeon for about ten years; died at his home in that place, April 5.

**Michael Downes, M.D.** Missouri Medical College, St. Louis, 1891; died at his home in St. Louis, March 10, aged 48.

**Timotheus Taminosian, M.D.** Jefferson Medical College, 1895; died at his home in Boston, March 13, aged 52.

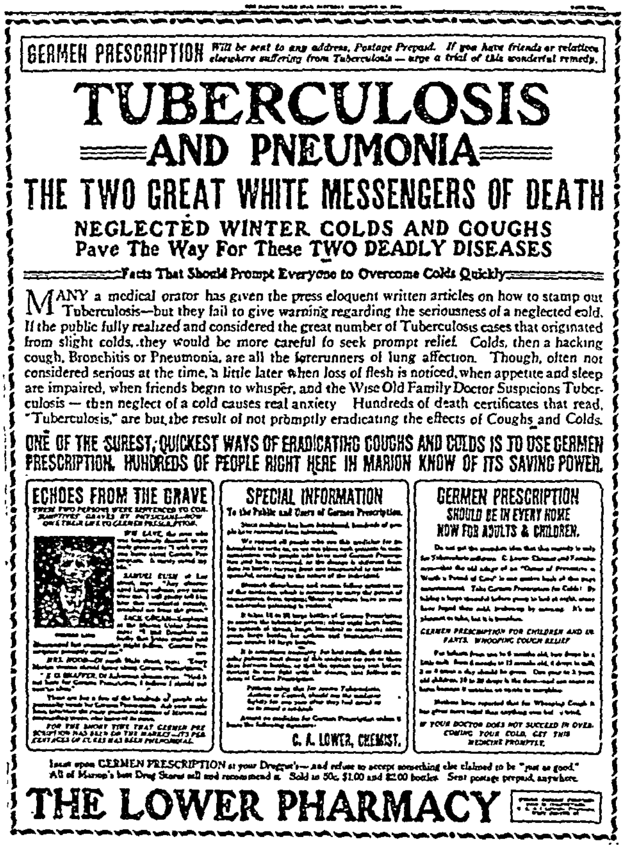
# The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

## LOWER'S GERMEN PRESCRIPTION

### Another Fraudulent Consumption Cure

Marion, Ohio, has the unenviable distinction of being the home of one of the latest of the many cruel frauds that capitalize the credulity and the hopefulness of the consumptive. This is Lower's Germen Prescription, prepared by Lower's Pharmacy. The nostrum is said to be the "discovery" of C. A. Lower, one of the proprietors of the Lower Pharmacy, who emphasizes the fact in the newspaper advertisements that he is a "chemist." While as a pharmacist Lower disgraces an honorable profession, he utilizes the knowledge there learned to avoid technical violation of the federal Food and Drugs Act in putting out his swindling nostrum. The "pure food law" effectually prevents fakers of the Lower type from lying on the labels, but unfortunately its operations do not extend to the newspaper advertisements. As a result Lower can, and does, allow full play to his mendacity when describing his "consumption cure" in the newspapers. Of the many falsehoods told in describing this stuff we quote a few:



GERMEN PRESCRIPTION *Will be sent to any address, Postage Prepaid. If you have friends or relatives elsewhere suffering from Tuberculosis — urge a trial of this wonderful remedy.*

TUBERCULOSIS

AND PNEUMONIA

THE TWO GREAT WHITE MESSENGERS OF DEATH

NEGLECTED WINTER COLDS AND COUGHS

Pave The Way For These TWO DEADLY DISEASES

Facts That Should Prompt Everyone to Overcome Colds Quickly

MANY a medical orator has given the press eloquent written articles on how to stamp out Tuberculosis—but they fail to give warning regarding the seriousness of a neglected cold. If the public fully realized and considered the great number of Tuberculosis cases that originated from slight colds, they would be more careful to seek prompt relief. Colds, then a hacking cough, Bronchitis or Pneumonia, are all the forerunners of lung affection. Though, often not considered serious at the time, a little later when loss of flesh is noticed, when appetite and sleep are impaired, when friends begin to whisper, and the Wise Old Family Doctor Suspicions Tuberculosis — then neglect of a cold causes real anxiety Hundreds of death certificates that read, "Tuberculosis," are but the result of not promptly eradicating the effects of Coughs and Colds.

ONE OF THE SUREST, QUICKEST WAYS OF ERADICATING COUGHS AND COLDS IS TO USE GERMEN PRESCRIPTION. HUNDREDS OF PEOPLE RIGHT HERE IN MARION KNOW OF ITS SAVING POWER.

ECHOES FROM THE GRAVE

SPECIAL INFORMATION

To the Public and Users of Germen Prescription.

C. A. LOWER, CHEMIST.

GERMEN PRESCRIPTION

SHOULD BE IN EVERY HOME

NOW FOR ADULTS & CHILDREN.

Insist upon GERMEN PRESCRIPTION at your Druggist's—and refuse to accept something else claimed to be "just as good." All of Marion's best Drug Stores sell and recommend it. Sold in 50c, $1.00 and $2.00 bottles. Sent postage prepaid, anywhere.

THE LOWER PHARMACY

One of the many full-page newspaper advertisements of Lower's fraudulent "consumption cure."

> "The most Deadly Foe to the Great White Plague—TUBERCULOSIS—Science Has Yet Produced."
> "Its record is perfect."
> "Germen Prescription is a Permanent Cure."
> "A Genuine Cure for Tuberculosis."
> "Its Record of Cures of Tuberculosis is Higher Than Any Other Known Remedy."

These excerpts from newspaper advertisements, which the Federal law does not control, make plain just how far Mr. Lower would go on the labels of his nostrum were they not subject to the healthy restraint of the federal law. Of course there are testimonials. The absolute worthlessness of such testimony is exceeded only by the ease with which it may be obtained, as has been demonstrated time and again. Usually THE JOURNAL waits for a year or two before publishing an article about a fraudulent consumption cure so that it may present to its readers the death certificates of the individuals whose testimonials have been used. As Germen Prescription has been on the market but a comparatively short time, the inevitable has not yet occurred in those cases of true tuberculosis in which patients are relying on Lower's fraudulent nostrum for their recovery. In due time, however, photographic reproductions of the testimonials side by side with the death certificates of those giving them will be forthcoming.

According to Lower "it takes from 15 to 30 large bottles of Germen Prescription to remove the tuberculosis poison." The "large" bottles cost the unfortunate victim $2 each. This probably explains why Mr. Lower can carry full-page newspaper advertisements.

A sealed original package of Lower's Germen Prescription was obtained for analytical purposes and subjected to examination in the Association's laboratory. The label on the bottle, in addition to declaring the presence of 5 per cent. alcohol, gives what purports to be the composition of this nostrum in bastard Latin, thus:

"Herb Menthae peperitae.
"Herb Marrubium Vulgarae
"Ex Balsanum Tolutonum
"Herb Hydrastis Canadensis
"Scillae Maratinia, Mentholis
"Ex Virginianna Prunus
"Ex Capsici Fastiagatum"

This formula reduced to English would read:

Peppermint
Horehound
Extract of Balsam of Tolu
Golden Seal
Squills.
Menthol
Extract of wild cherry
Cayenne pepper.

The quantities of the various constituents are not given, of course, except in the case of alcohol, which the Food and Drugs Act requires. The Association's chemists analyzed the preparation and reported:

#### LABORATORY REPORT

"Qualitative tests of Lower's Germen Prescription indicated the presence of sugar, menthol, capsicum and traces of alkaloids, probably hydrastin and berberin. Quantitative determinations indicated the presence of 2.93 per cent. of alcohol by volume, 1.83 gm. of menthol and about 0.01 gm. of alkaloidal substance in each 100 c.c. Since the alcoholic content is but 2.93 per cent. appreciable quantities of the balsam of tolu can not be present. Since the recognition of small amounts of horehound, squills and wild cherry in complex mixtures is very difficult no attempt was made to determine the presence of these substances other than by odor and taste. According to Herder (*Arch. Pharm.*, 1906, ccxliv, 120) and to Astolfoni (*Bull. Chim. Farm.*, 1904, xliii, 117) the alkaloids of hydrastis are found only in the rhizome and roots of the plant. According to this the preparation should not contain any alkaloids from hydrastis since the herb of this plant only is claimed to be present. The traces of alkaloid found appear to be a mixture of hydrastin and berberin, thus indicating that the rhizome and roots of hydrastin, rather than the herb, had probably been employed. Whether or not such drugs as horehound, balsam of tolu and wild cherry are present matters little since they are of so little therapeutic value. It is evident that whatever therapeutic value the preparation may possess is due largely to the menthol."

Evidently, therefore, this peppermint-horehound-cayenne pepper-menthol mixture has but one drug present in sufficient quantities to have any therapeutic effect—menthol. It hardly requires medical knowledge to recognize the absolute fraudulence of claiming that this mixture will "cure" consumption. About the only effect that the continued use of Germen Prescription will have, is that of deranging the digestion of the person taking it. This in itself shows the viciousness of the preparation, for it has been well said that the consumptive gets well on his stomach. The ability of the tuberculous sufferer to digest food is a necessity if he would successfully combat the inroads of the bacilli.

Summed up then, it may be said that Lower's Germen Prescription will shorten the life of every consumptive who depends on it for his recovery. The only beneficiaries of the sale of this worthless and harmful mixture are the Lower Pharmacy and those newspapers that are willing to share the blood money thus obtained. Of all tainted dollars few are quite so dirty as those wrung by deceit and fraud from the unfortunate but ever-hopeful consumptive.

## VALENTINE'S MEAT JUICE

### Report of the Council on Pharmacy and Chemistry

Some time ago[1] the Council authorized publication of a report dealing with the composition and claims made for a number of the more generally advertised meat and beef juices. Among these was Valentine's Meat Juice. This it was shown was sold under an incorrect name, the claims for its composition were not truthfully stated and its exploiters made false and misleading claims in regard to its food value. As Valentine's Meat Juice is still widely advertised the referee in charge of this class of products deemed a reexamination of the product advisable. This was made and on it was based the following report which has been submitted to the Council, adopted, and its publication authorized.

W. A. Puckner, Secretary.

Your referee has had examined recently purchased specimens of Valentine's Meat Juice. The examination shows that it has virtually the same composition as that given in the report of the Council "Meat and Beef Juices" published in The Journal, Nov. 20, 1909. It contains practically no coagulable protein material, one of the products characteristic of a meat juice. It is essentially a diluted meat extract.

The following statement found in former circulars now seems to have been eliminated:

> "The two-ounce oval bottle, adopted for the Meat Juice contains the concentrated juice of four pounds of the best beef, exclusive of fat; or the condensed essence of one and a half pints of pure liquid juice which is obtained from the flesh of beef."

An endeavor is still made, however, to convey the idea that the product contains coagulable protein, as shown by the following:

> "Boiling water changes the character of the preparation."
>
> "The use of boiling water with the Meat-Juice changes the character of the Preparation."

The proprietors undoubtedly know that the product does not contain any coagulable material and that the statements just quoted are plain misrepresentations.

The advertising circular contains a large number of "Testimonials of the Medical Profession." As all are undated, one cannot tell how old these testimonials are. One physician recommends it highly for hypodermic use; another says, "I have kept cases on it and it alone for days, without attempting to give any other food, and the results have been entirely satisfactory." According to another, it is "most invaluable in typhoid fever and also in diphtheria."

Valentine's Meat Juice conflicts with the following rules of the Council:

*Rule 1,* in that its composition is not correctly given;

*Rule 6,* in that unwarranted therapeutic claims are made, the profession being led to believe that the product is highly nutritious and is valuable in the treatment of pneumonia, diphtheria and typhoid fever;

*Rule 8,* in that the name is objectionable, for while sold as a meat juice, in reality it has the character of a meat extract.

Valentine's Meat Juice is a fraud on the public, and in view of its continued exploitation under false claims, the referee recommends that the Council reiterate its former condemnation and authorize the publication of this report.

Editor's Note.—The difference between meat extracts and meat juices was fully discussed in the previous report of the Council. Meat "juices" are made by the cold expression of meat with subsequent evaporation, in such a way that the nutritious coagulable proteins remain in solution. In making meat "extracts," heat is used which almost completely removes the coagulable proteins and thus renders it practically devoid of nutrient qualities.

A list of some of the medical journals that carry advertisements of Valentine's Meat Juice, follows:

*Pediatrics*
*Old Dominion Journal of Medicine & Surgery*
*Medical World*
*Virginia Medical Semi-Monthly*
*Medical Times*
*American Medicine*

# Correspondence

### "Radiologic Signs" versus Morphologic Defects

*To the Editor:*—The signs described by Dr. Carman in his article on the "Radiologic Signs of Duodenal Ulcer," (The Journal, March 28, 1914, p. 980), constitute merely a symptom-complex. In the author's own words, they are "signs" or symptoms, and not *direct evidence* of the lesion itself. Radiologic signs and symptom-complexes for duodenal ulcer are as numerous and varied as the observers who describe them. Compare Dr. Carman's "radiologic signs" with the symptom-complexes described by Holzknecht, Strauss and Kreuzfuchs, and if you think that they agree as to the significance of the various phenomena, read Holzknecht's and Haudek's latest article in the *Fortschritte auf dem Gebiete der Roentgenstrahlen* (xxi, 633).

Dr. Carman's three "major signs" are trifling compared with the direct evidence which he relegates to the third place under "minor signs." All of the cases illustrating his article present definite *direct evidence* of the irregularities characteristic of ulcer of the cap; and it seems like carrying coals to Newcastle to depend on associated functional disturbances of the gastric motor phenomena, when there is such direct roentgenologic evidence of the organic lesion itself.

Included in the title and at the head of the list of signs stands hyperperistalsis. Yet three of the four roentgenograms illustrating the article fail to show more active peristalsis than is observed during the stage of systole in 50 per cent. of normal cases. Therefore as a cardinal point on which to base the roentgenologic diagnosis of duodenal ulcer, hyperperistalsis is an unreliable corner-stone. The case illustrated in Figure 1, which does demonstrate real hyperperistalsis, presented sufficient pyloric obstruction to cause a six-hour gastric retention of three-quarters of the bismuth meal; but there is nothing in Dr. Carman's argument to indicate that the obstruction was caused by a duodenal ulcer rather than by some other organic obstruction. As a case of pyloric obstruction the diagnosis is perfectly obvious.

Residue in the stomach at six hours is frequently present in cases exhibiting no organic lesion of the stomach or duodenum, and *per se* is the least significant finding that I know of.

The appearance illustrated in Figures 5 and 6, termed "residue in the duodenum," may be seen during some stage of the gastric cycle in nearly all cases, especially when the patient is examined in the erect posture. It is similar to Hemmeter's sign, which has led to many erroneous diagnoses of gastric and duodenal ulcer.

The diagnostic value of hypermotility, the first of Dr. Carman's minor signs, is as negligible as that of hyperperistalsis. It is a functional phenomenon that is as characteristic of any one of the long list of lesions referred to by Dr. Carman, as it is of duodenal ulcer. Of what use is it, therefore, as a sign of duodenal ulcer?

In dealing with "a diverticulum of perforating ulcer," Dr. Carman's terminology is ambiguous. If he means an accumulation in the punched-out crater of an ulcer, the finding is of great significance when present, but it is relatively rare. An accumulation in the uninvolved portion of the cap is also a noteworthy finding, but must be differentiated from the chyme in a normal cap at the end of gastric digestion.

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[1] The Journal A. M. A., Nov. 20, 1909.

dizziness. Nagy,[11] Schneider-Sievers[12] and Toepfer[13] report cases of eclampsia. Mackenrodt,[14] Patek,[15] Rieck,[16] Hamm[17] and Heil[18] report cases of contraction of the dilated uterus. Hamm,[19] Voigts,[20] Mackenrodt[21] and Malinowsky[22] report cases of tetany of the uterus, and Voigts[23] reports cases of premature expulsion of the placenta. Rieck[24] reports a case of tetany of the uterus following the use of a pituitary extract and concludes that it is not to be recommended as an oxytocic in the home. E. Herz[25] reports a case of rupture of the uterus under Pituitrin. Grumann[26] reports complications following the injection of Pituitrin consisting of a rectocervical fistula produced by prolonged pressure of the head (for two hours). The mother survived. The child died of sepsis. H. B. Sheffield[27] reports a case of toxic convulsions in the child shortly after birth, in which pituitary extract was used, which disappeared on taking the infant from the breast. He attributes this trouble to pituitary extract which had been secreted in the mother's milk.

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26. Grumann: *München. med. Wchnschr.*, July 1, 1913; abstr., The Journal A. M. A., Aug. 9, 1913, p. 444.
27. Sheffield, H. B.: *Am. Jour. Obst.;* abstr., February, 1914.

3. We are unable to state the opinion of the majority of the profession regarding Phylacogens, as no vote has been taken. Their use has been generally condemned by conservative clinicians. For the opinion of The Journal, see the following:

"*Rheumatism Phylacogen*," Queries and Minor Notes, The Journal, Aug. 10, 1912, p. 464.

Editorial note on McLean, Franklin G.: Death Following the Administration of Phylacogen (Schafer), The Journal, Feb. 22, 1913, p. 588.

## LEVULOSE AND CANE-SUGAR

*To the Editor:*—The editorial on "The Behavior of Levulose *in the* Body" (The Journal, April 18, 1914, p. 1258), states in regard to levulose that "it is a component of one of the commonest of foodstuffs—cane-sugar." While this statement would suggest that levulose is a common impurity of cane-sugar, Puckner says (The Journal, Sept. 28, 1912, p. 1156) that ordinary cane-sugar, the so-called granulated sugar, almost without exception approaches absolute purity. Or was the *phrase* referred to intended to suggest that levulose is readily produced from cane-sugar by hydrolysis? If so, I am afraid that the statement will mislead readers.
M. F.

Answer.—Our correspondent is quite correct in pointing out that levulose is not a common adulterant of, or impurity in, the cane-sugar which is consumed at the present time in the dietary of man. We intended to imply that cane-sugar—and the same is true of beet-sugar, sorghum-sugar or maple-sugar—is readily converted into levulose and dextrose (invert sugar) as the result of the digestive changes which it almost inevitably undergoes in the alimentary tract. This inversion, as it is technically called, of cane-sugar into the two hexose suga[illegible] mentioned, may begin in the stomach, owing to the h[illegible]ction of any "free" hydrochloric acid present; [illegible]er easily accomplished by the secretions of the [illegible] There is every reason to believe that cane-[illegible]d, as such, from the alimentary tract, [illegible] of its derivatives; levulose and dex-[illegible] therefore, levulose is a component [illegible] potential sense. The inadvertent [illegible] should therefore be interpreted [illegible] evidently has been by our

# *Medical Education and State Boards of Registration*

## COMING EXAMINATIONS

Arkansas: Little Rock, May 12. Sec., Dr. W. S. Stewart, Suite 404 Citizens Bk. Bldg., Pine Bluff. Homeopathic: Little Rock, May 12. Sec., Dr. I. J. Brooks, 219 East 10th St., Little Rock. Eclectic: Little Rock, May 12. Sec., Dr. C. E. Laws, Ft. Smith.

Georgia: Atlanta and Augusta, June 3. Sec., Dr. C. T. Nolan, Marietta.

Illinois: Coliseum Annex, Chicago, May 12-14. Sec., Mr. Amos Sawyer, Springfield.

Iowa: Iowa City, June 11-13. Sec., Dr. Guilford H. Sumner, State House, Des Moines.

Kansas: Kansas City, June 9-12. Sec., Dr. H. A. Dykes, Lebanon.

Kentucky: Louisville, June 3-5. Sec., Dr. A. T. McCormack, Bowling Green.

Louisiana: New Orleans, June 4-6. Sec., Dr. E. L. Leckert, Macheca Bldg., New Orleans. Homeopathic Board: New Orleans, May 4. Sec., Dr. Edward Harper, 702 Macheca Bldg., New Orleans.

Massachusetts: Boston, May 12-14. Sec., Dr. Walter P. Bowers, Room 159, State House, Boston.

Michigan: Ann Arbor, June 9. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

Nebraska: Lincoln, May 27. Sec., Dr. H. B. Cummins, Seward.

Nevada: Carson City, May 4. Sec., Dr. Simeon L. Lee, Carson.

New York: May 19-22. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

North Carolina: Raleigh, June 9. Sec., Dr. Benj. K. Hays, Oxford.

Ohio: Columbus, June 2-5. Sec., Dr. George H. Matson, State House, Columbus.

Pennsylvania: Philadelphia, June 1-3. Sec., Mr. Nathan C. Schaeffer, Harrisburg.

South Carolina: Columbia, June 9. Sec., Dr. A. Earle Boozer, 1802 Hampton Ave., Columbia.

Tennessee: *Memphis, Nashville and Knoxville, first week in May.* Sec., Dr. A. B. DeLoach, Memphis.

### Nebraska February Report

Dr. H. B. Cummins, secretary of the Nebraska State Board of Health, reports the written examination held at Lincoln, Feb. 11, 1914. The number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75. The number of candidates examined was 7, all of whom passed. The following colleges were represented:

| College | Year Grad. | Per Cent. |
|---|---|---|
| PASSED | | |
| Chicago College of Medicine and Surgery | (1912) | 80.4 |
| Rush Medical College | (1893) | 84.4 |
| Keokuk Medical College | (1906) | 77 |
| Cotner Medical College | (1913) | 80.5 |
| John A. Creighton Medical College | (1913) | 76.5 |
| Omaha Medical College | (1902) | 94.6 |
| Bellevue Hospital Medical College | (1892) | 86.1 |

### Arizona January Report

Dr. John Wix Thomas, secretary of the State Board of Medical Examiners of Arizona, reports the written examination held at Phoenix, Jan. 6-7, 1914. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 17, including 3 osteopaths, of whom 10 passed, including 2 osteopaths, and 7 failed, including 1 osteopath. The following colleges were represented:

| College | Year Grad. | Per Cent. |
|---|---|---|
| PASSED | | |
| University of Colorado | (1912) | 79.8 |
| George Washington University | (1910) | 79.2 |
| " " | (1905) | 81.7 |
| " " School | (1909) | 81.4 |
| " " | (1904) | † |
| " " College | (1902) | 86.3 |
| | (1904) | 77 |
| Vanderbilt University | (1908) | 84 |
| FAILED | | |
| University of Illinois | (1912) | 71.7 |
| Indiana Medical College | (1906) | 73.1 |
| College of Physicians and Surgeons, Kansas City, Kan. | (1897) | 75* |
| St. Louis College of Physicians and Surgeons | (1905) | 69.5 |
| University of the City of New York | (1886) | 69.5 |
| Medico-Chirurgical College of Philadelphia | (1913) | 75.7* |

* Fell below 60 in certain subjects.
† No grade given.

**The Quick and the Dead.**—There is a dead medical literature, and there is a live one. The dead is not all ancient, the live is not all modern.—Oliver Wendell Holmes.

The fallacy of depending on the pressure-tender point, which is Holzknecht's chief diagnostic symptom, has been referred to by Dr. Carman previously. It is recalled that in a former communication he defined the locus of the tender point as 3 or 4 inches from the site of the ulcer.

Considering the method which Dr. Carman employs, his percentage of successful diagnoses is remarkable, namely, 135 out of 198. These statistics, however, hardly agree with those of another member of the staff of St. Mary's Hospital, who remarked within a year that 85 per cent. of the Roentgen-ray reports offered no confirmation or disproof of a gastric or duodenal lesion. Moreover, according to Mayo, the Roentgen-ray has given diagnostic aid in only 65 per cent. of their cases of gastric carcinoma. This would seem to leave much that might be attained by the use of serial roentgenography, the remarkable accuracy of which, as a diagnostic method, is fully demonstrated in an article now at press, although I have never claimed 100 per cent. correct diagnoses by this means.

The tremendous amount of work required by Dr. Carman would necessarily prevent his adopting the use of serial roentgenography, but why criticize the method without trying it? His tirade against the negative and positive diagnosis of surgical lesions of the cap is simply a case of history repeating itself. In the early days there was the same opposition to a definite Roentgen diagnosis of fractures and urinary calculi. Where is the surgeon to-day who will treat either of these conditions without the aid of the Roentgen ray? In my experience the patient, the physician and the surgeon want as definite an opinion concerning the presence or absence of a surgical lesion of the stomach and cap as they want in cases of suspected fractures or urinary calculi.

Lewis Gregory Cole, M.D., New York.

### Holmes, Not Semmelweis

*To the Editor:*—Your comments on the banquet in honor of Semmelweis (The Journal, April 11, 1914, p. 1177) are timely. To the disregard of the memories of men who have shed luster on our calling and contributed to the removal of sorrow and pain and death may be traced much of the lack of appreciation now meted out to medical men by the public as manifested in the passage by their representatives of unfairly discriminating laws that humble us and render our calling a thankless one. If we do not honor our own colleagues, if we do not hold up as examples their devotion to humanity at the risk of their comfort, health and life, how can we expect the public to know of their achievements? You well say that "it is a commendable custom thus to keep alive the memory of a physician who has helped by a great discovery to preserve the lives of countless women in the performance of their highest service to the world." It is possible that "Dollinger assumes that Semmelweis was the originator of the theory of the contagiousness of puerperal fever," but the following incidents would render such an assumption highly improbable: In the Section on History of Medicine at the Congress in Carlsbad in 1902 I presented a paper on "Some American Contributions to the History of Modern Therapy" in which I dwelt with pride on the notable discovery of our own Holmes, and said courteously: "Far be it from me to take aught from the man who introduced the idea successfully in Europe. To the unfortunate Semmelweis is given the credit of being the pioneer in urging the importance of prophylaxis in this terrible scourge. When it is remembered that his mind was wrecked by the criticisms he encountered, even the most truth-loving historian must pause ere he would snatch one leaf from the laurel-crowned brow of this self-sacrificing man. Nevertheless, historical justice demands that the claim of an American physician be recognized, whose views antedate those of Semmelweis by five years, as can be established by irrefutable evidence." The latter was presented from the *New England Medical Journal* and compared with the first note in *Hebra's Journal,* which reported the discovery five years later. I was astonished and gratified that not one of the forty-odd teachers of history of medicine who were present questioned this statement, though some others were unsuccessfully attacked. After the session had adjourned I was approached by Dr. Györy, docent of history in Budapest, and Dr. Neuburger, docent, now professor of the history of medicine in Vienna, with the request to permit them to look over my data. On the following day they returned my manuscript with thanks. In November and December, 1902, my essay was published in German in *Janus,* a journal devoted to medical history, and in February, 1903, in English in the *Therapeutic Gazette.* Two polemic contradictory articles criticizing my data appeared in *Janus* in which Docent von Györy himself brought out the fact that Semmelweis had not published his discovery until 1861, which made the priority of Holmes over Semmelweis ten years. My last reply to this polemic writer quoted the following from Siebold and Dorn's "History of Midwifery": "Holmes discovered the prophylaxis of puerperal fever when Semmelweis was still a student of medicine," and I closed it by stating that if this work had appeared before my essay was written I should not have deemed it necessary to present the true history of Holmes' achievement before an assemblage of experts in medical history.

A fact never mentioned hitherto is that Semmelweis discovered the value of the nail-brush in what is now called asepsis, and Holmes was the pioneer of the more important discovery.

The interest of The Journal in this cause may serve to contradict the old saw, "A prophet is not without honor save in his own country." Simon Baruch, M.D., New York.

### Painless Parturition

*To the Editor:*—Dr. R. C. Colburn's recommendation of nitrous oxid as the anesthetic of choice in parturition (The Journal, April 11, 1914, p. 1189) might be worthy of some consideration if the woman alone were to be thought of. This, however, is not the case. The life of the child is of more importance than the comfort of the mother (I do not say her safety), and as the baby born by a mother anesthetized by nitrous oxid requires usually very active resuscitation, and as a much larger number of these babies will fail to respond to the attempt than would ordinarily occur, this anesthetic is contra-indicated in parturition. It is the custom in many hospitals in which nitrous oxid is given preliminary to ether anesthesia to omit the nitrous oxid when operating on women late in pregnancy or in labor.

C. D. Daniels, M.D., Philadelphia.

## Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### PITUITARY EXTRACT AND THE PHYLACOGENS

*To the Editor:*—In view of the unsettled opinion of the profession on the following questions, I should like to hear from The Journal.

1. What is the expressed attitude of the eminent obstetricians of this country as to the use of any oxytocic, particularly pituitary extract, in anything like a routine way?

2. Have any bad results on either mother or child been reported from pituitary extract?

3. What is the opinion of the majority of the profession regarding the use of Phylacogen?

*R. C. Holgate, M.D., Manhattan, Mont.*

Answer. 1. Obstetricians, "eminent" and otherwise, generally regard the use of an oxytocic as legitimate when indicated. The use of pituitary extract as an oxytocic must be regarded as in the experimental stage.

Yes. Stern,[1] Bagger-Jörgensen[2] and Spaeth[3] report cases of atony of the uterus. Nagy,[4] Spaeth[5], Malinowsky[6] and Lieven[7] report cases of impairment and slowing of the heart-tones and asphyxia of the fetus. Schneider-Sievers,[8] Calman[9] and Voigts[10] report cases of collapse, ringing in the ears and dizziness. Nagy,[11] Schneider-Sievers[12] and Toepfer[13] report cases of eclampsia. Mackenrodt,[14] Patek,[15] Rieck,[16] Hamm[17] and Heil[18] report cases of contraction of the dilated uterus. Hamm,[19] Voigts,[20] Mackenrodt[21] and Malinowsky[22] report cases of tetany of the uterus, and Voigts[23] reports cases of premature expulsion of the placenta. Rieck[24] reports a case of tetany of the uterus following the use of a pituitary extract and concludes that it is not to be recommended as an oxytocic in the home. E. Herz[25] reports a case of rupture of the uterus under Pituitrin. Grumann[26] reports complications following the injection of Pituitrin consisting of a rectocervical fistula produced by prolonged pressure of the head (for two hours). The mother survived. The child died of sepsis. H. B. Sheffield[27] reports a case of toxic convulsions in the child shortly after birth, in which pituitary extract was used, which disappeared on taking the infant from the breast. He attributes this trouble to pituitary extract which had been secreted in the mother's milk.

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## LEVULOSE AND CANE-SUGAR

*To the Editor:*—The editorial on "The Behavior of Levulose in the Body" (The Journal, April 18, 1914, p. 1258), states in regard to levulose that "it is a component of one of the commonest of foodstuffs —cane-sugar." While this statement would suggest that levulose is a common impurity of cane-sugar, Puckner says (The Journal, Sept. 28, 1912, p. 1156) that ordinary cane-sugar, the so-called granulated sugar, almost without exception approaches absolute purity. Or was the phrase referred to intended to suggest that levulose is readily produced from cane-sugar by hydrolysis? If so, I am afraid that the statement will mislead readers.

M. F.

Answer.—Our correspondent is quite correct in pointing out that levulose is not a common adulterant of, or impurity in, the cane-sugar which is consumed at the present time in the dietary of man. We intended to imply that cane-sugar—and the same is true of beet-sugar, sorghum-sugar or maple-sugar—is readily converted into levulose and dextrose (invert sugar) as the result of the digestive changes which it almost inevitably undergoes in the alimentary tract. This inversion, as it is technically called, of cane-sugar into the two hexose sugars mentioned, may begin in the stomach, owing to the hydrolytic action of any "free" hydrochloric acid present; and it is further easily accomplished by the secretions of the small intestine. There is every reason to believe that cane-sugar is not absorbed, as such, from the alimentary tract, but rather in the form of its derivatives; levulose and dextrose. Strictly speaking, therefore, levulose is a component of cane-sugar only in this potential sense. The inadvertent misstatement in our editorial should therefore be interpreted in the correct sense, as it evidently has been by our correspondent.

# *Medical Education and State Boards of Registration*

## COMING EXAMINATIONS

Arkansas: Little Rock, May 12. Sec., Dr. W. S. Stewart, Suite 401 Citizens Bk. Bldg., Pine Bluff. Homeopathic: Little Rock, May 12. Sec., Dr. I. J. Brooks, 219 East 10th St., Little Rock. Eclectic: Little Rock, May 12. Sec., Dr. C. E. Laws, Ft. Smith.

Georgia: Atlanta and Augusta, June 3. Sec., Dr. C. T. Nolan, Marietta.

Illinois: Coliseum Annex, Chicago, May 12-14. Sec., Mr. Amos Sawyer, Springfield.

Iowa: Iowa City, June 11-13. Sec., Dr. Guilford H. Sumner, State House, Des Moines.

Kansas: Kansas City, June 9-12. Sec., Dr. H. A. Dykes, Lebanon.

Kentucky: Louisville, June 3-5. Sec., Dr. A. T. McCormack, Bowling Green.

Louisiana: New Orleans, June 4-6. Sec., Dr. E. L. Leckert, Macheca Bldg., New Orleans. Homeopathic Board: New Orleans, May 4. Sec., Dr. Edward Harper, 702 Macheca Bldg., New Orleans.

Massachusetts: Boston, May 12-14. Sec., Dr. Walter P. Bowers, Room 159, State House, Boston.

Michigan: Ann Arbor, June 9. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

Nebraska: Lincoln, May 27. Sec., Dr. H. B. Cummins, Seward.

Nevada: Carson City, May 4. Sec., Dr. Simeon L. Lee, Carson.

New York: May 19-22. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

North Carolina: Raleigh, June 9. Sec., Dr. Benj. K. Hays, Oxford.

Ohio: Columbus, June 2-5. Sec., Dr. George H. Matson, State House, Columbus.

Pennsylvania: Philadelphia, June 1-3. Sec., Mr. Nathan C. Schaeffer, Harrisburg.

South Carolina: Columbia, June 9. Sec., Dr. A. Earle Boozer, 1802 Hampton Ave., Columbia.

Tennessee: Memphis, Nashville and Knoxville, first week in May. Sec., Dr. A. B. DeLoach, Memphis.

## Nebraska February Report

Dr. H. B. Cummins, secretary of the Nebraska State Board of Health, reports the written examination held at Lincoln, Feb. 11, 1914. The number of subjects examined in was 14; total number of questions asked, 100; percentage required to pass, 75: The number of candidates examined was 7, all of whom passed. The following colleges were represented:

| College | Year Grad. | Per Cent. |
|---|---|---|
| PASSED | | |
| Chicago College of Medicine and Surgery | (1912) | 80.4 |
| Rush Medical College | (1893) | 84.4 |
| Keokuk Medical College | (1906) | 77 |
| Cotner Medical College | (1913) | 80.5 |
| John A. Creighton Medical College | (1913) | 76.5 |
| Omaha Medical College | (1902) | 94.6 |
| Bellevue Hospital Medical College | (1892) | 86.1 |

## Arizona January Report

Dr. John Wix Thomas, secretary of the State Board of Medical Examiners of Arizona, reports the written examination held at Phoenix, Jan. 6-7, 1914. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 17, including 3 osteopaths, of whom 10 passed, including 2 osteopaths, and 7 failed, including 1 osteopath. The following colleges were represented:

| College | Year Grad. | Per Cent. |
|---|---|---|
| PASSED | | |
| University of Colorado | (1912) | 79.8 |
| George Washington University | (1910) | 79.2 |
| Howard University | (1905) | 81.7 |
| Northwestern University Medical School | (1909) | 81.4 |
| Maryland Medical College | (1904) | † |
| Marion Sims Beaumont Medical College | (1902) | 86.3 |
| Washington University | (1904) | 77 |
| Vanderbilt University | (1908) | 84 |
| FAILED | | |
| University of Illinois | (1912) | 71.7 |
| Indiana Medical College | (1906) | 73.1 |
| College of Physicians and Surgeons, Kansas City, Kan. | (1897) | 75* |
| St. Louis College of Physicians and Surgeons | (1905) | 69.5 |
| University of the City of New York | (1886) | 69.5 |
| Medico-Chirurgical College of Philadelphia | (1913) | 75.7* |

* Fell below 60 in certain subjects.

† No grade given.

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**The Quick and the Dead.**—There is a dead medical literature, and there is a live one. The dead is not all ancient, the live is not all modern.—Oliver Wendell Holmes.

# Book Notices

Sciatica. A Fresh Study, with Notes of Nearly Seven Hundred Cases. By William Bruce, M.A., LL.D., M.D. Cloth. Price, $1.75 net. Pp. 175, with 18 illustrations. New York: William Wood & Co., 1913.

This is perhaps the most original contribution relating to sciatica which has appeared for some time. The thesis sustained by the author is the rather startling one that sciatica is not a disease of the sciatic nerve at all, but in all cases an arthritis of the hip-joint. The author first quotes extensively from Gowers and Lawson and less fully from more recent writers for the purpose of giving a summary of present opinion concerning sciatica. He then presents his own conception of the disease and quotes very fully from the classic work of Hilton in order to explain why trouble in the hip-joint can cause pain in the knee, down the back of the leg, and in the heel, foot, etc. In other words, he shows that the pain of sciatica is a referred or reflected pain, and he calls to his aid Calder and Reid for the purpose of indicating the routes of irritation. His opinion is based on personal observation of 676 cases, certainly ample material on which to found an opinion, but judging from the notes of these cases, one may say that most of the observations were very incomplete. In 80 per cent. of 125 specially studied cases there were present one or more of the following signs which the author considers indicate involvement of the hip-joint: gout or rheumatism; lumbago, pain on flexion, pain on external rotation, pain on internal rotation, wasting of glutei, incomplete natal folds, and tenderness over the capsule. Bruce further details his method of examination, which in nearly all cases showed involvement of the hip.

For many years it has been maintained by Dr. H. T. Patrick that many cases supposed to be sciatica were really cases of arthritis, and he has found that the most useful maneuver in detecting arthritis is to have the patient lie flat on the back with one leg extended and the ankle of the other side placed just above the knee of the extended leg. With the ankle in this position the knee is then depressed toward the bed or couch. That is, the thigh is abducted, externally rotated and extended at the same time. In arthritis this will nearly always cause pain and there will be found to be restriction of this movement. Bruce does not include this in his various tests. In the book are also descriptions of joint-changes as found by the Roentgen ray (with illustrations), an anatomic appendix and one giving the brief notes of 691 cases. Under the head of treatment, assuming that the trouble is an arthritis, Bruce offers nothing new. The essential parts of the work can be read in half an hour and will richly repay the reader.

From the Letter-Files of S. W. Johnson, Professor of Agricultural Chemistry in Yale University, 1856-1896, Director of the Connecticut Agricultural Experiment Station, 1877-1900. Edited by His Daughter, Elizabeth A. Osborne. Cloth. Price, $2.50 net. Pp. 292, with illustrations. New Haven: Yale University Press, 1913.

Medical men often mention with envy the abundant support which agricultural science receives from public funds, contrasting it with the almost total neglect that medical science has struggled under for so long. This envy, of course, does not belittle the value of agricultural science or begrudge its support, but only asks that medicine also receive some aid which it is able so abundantly to repay. The development of agricultural science in America owes more to the prophetic vision and convincing advocacy of one man, Samuel W. Johnson, than to any and perhaps to all other forces. After many years of effort, both by developing the science of agricultural chemistry in his own laboratory and by a persistent campaign of public education, he secured the organization of the first agricultural experiment station in Connecticut in 1877.

In the story of this campaign and in the early struggles to secure recognition of the claims of science from "practical" men, one finds many incidents that strikingly duplicate the experiences of those who are now working for the advancement of the position of medical science in the community at large. His experiences in showing to the public the discrepancies between the advertiser's statements as to the composition of the fertilizers on the market, and the results of actual analyses of these products, recall vividly the work of our own Council on Pharmacy and Chemistry. Also, his reply to the advocates of "experience" as opposed to what they suppose science to be, should become a classic:

"Science is but another and the true name for all that is good in the experience of all men; and bears the same relation to ordinary experience that the clean grain does to the crop in the field, where there is chaff, straw, stubble, roots and weeds. Common experience is the native, rank, but wild growth of knowledge. Science is its trained and cultivated development. Common experience is swaying to and fro with every kind of doctrine, unsettled, unreliable; here asserting a thing, there denying it, now believing, now skeptical. But scientific experience is that whereon one may most surely rest, for it reveals the changeless and perfect laws, in whose obedience Nature glorifies her Author."

Johnson's views are so comprehensive, his insight into his public so keen, and his expression and elucidation so clear, that medical men will undoubtedly find quite as much pleasure and profit in this well-presented compilation of his letters and experiences as will the agricultural chemists. After reading it through, indeed, we wonder if the slow progress of medical science into the public support and service may not be largely because a man has not yet appeared who has been able to do for medicine what Johnson did for the development of scientific agriculture. He had the advantage, however, of touching his public more directly in its most vulnerable and sensitive spot, the pocketbook.

Die Untersuchung der Luftwege. Ein Vortrag zur Einführung in die Moderne Rhino-Laryngologie für Aerzte und Studierende. Von Dr. P. H. Gerber, A.O. Professor und Direktor der königlichen Universitats Poliklinik fur Hals. Paper. Price, 2 marks. Pp. 45, with illustrations. Wurzburg: Curt Kabitzsch, 1913.

This monograph is devoted to a description and demonstration of modern diagnostic technic as bearing on the upper air-passages. The author finds warrant for such a monograph in the recent important additions made to such diagnostic procedures. This technic is becoming more and more highly specialized, and is demanding much study and experience. Naturally the subjects of greatest interest are those of direct laryngoscopy, bronchoscopy and esophagoscopy. Various methods and instruments employed in these procedures are not only described, but also excellently illustrated. The monograph constitutes a clearly presented and well-illustrated brief account of all diagnostic procedures relating to the upper air-passages.

Physiological Histology of Man and Mammalian Animals Illustrated by Microscopic Preparations with Explanatory Text and Drawings. By Professor Dr. Sigmund. English Edition by C. Lovatt Evans, University College, London. Part 1: The Skin and Cutaneous Organs and Their Development. Price, $4. Rochester, N. Y.: Ward's Natural Science Establishment, 1913.

Under this pretentious title the authors issue a brief text explanatory of the illustrations, accompanied by a series of microscopic preparations as a supplement. The physiology in this text is rather elementary, and the work would not be seriously impaired in value if the text were wholly omitted, and only the slide and illustrative figures used. The microscopic preparations are really excellent, the material well chosen, and the technical manipulation above criticism.

Glrichtsarztliche Untersuchungen. Ein Leitfaden für Mediziner und Juristen. Von Dr. Otto Leers, Königlicher Gerichtsarzt. Paper. Price, 4 marks. Pp. 162. Berlin: Julius Springer, 1913.

This is a clear and concise presentation of the subject of examination of the human body and its tissues and fluids for medicolegal purposes. The work is the result of the author's practical experience extending over many years, and his object in thus formulating his ideas is that they may be of use to others, not only to students of medicine, but also to judges and officers of criminal courts who may have to deal with this class of cases. The latter particularly will here find not only the proper questions to ask the medicolegal expert, but also the answers that may be expected under given conditions.

# *Miscellany*

## Pennsylvania Antivivisection Case

The Journal last week (Medical News, April 25, 1914, p. 1341) contained an account of the trial of Dr. Sweet of the University of Pennsylvania, and commented editorially (Prosecution of Research Workers, p. 1331) on this remarkable opinion of Judge Bregy:

> "I charge you that the law of Pennsylvania does not allow pain and suffering to be inflicted on dogs for any purpose except for the relief of the suffering of the dog itself. They have no right to torture the dog for the purpose of obtaining scientific information."

### OPINION OF COUNSEL FOR THE UNIVERSITY

An opinion prepared by the counsel for the university which takes issue with Judge Bregy's consideration of the law, and advises the provost of the university that the work being done is not illegal, has been received. He says:

> "The castration of the domestic animals, the playing with game fish on the hook for hours by the fisherman, the trapping of birds and animals for their feathers or furs, or their wounding by sportsmen, and the killing of animals for food by the butcher, are all instances of common customs which have long been in existence and which involve the infliction of pain which could not by any construction be said to be 'for the relief of the suffering of the animal itself.'
>
> "The Act of the Assembly of Pennsylvania of 1855 made it a misdemeanor for a person 'wantonly or cruelly' to maltreat, beat or otherwise abuse any animal or animals belonging either to himself or others. This act was restricted to Philadelphia, but no indictments, it seems, were ever found under it. The act of 1869 provided that 'any one who should, within this Commonwealth, wantonly or cruelly ill-treat, overload, beat or otherwise abuse any animal, shall be deemed guilty of a misdemeanor.' Under this act prosecution was brought in a case in which the defendant had shot at pigeons liberated from a trap, killing one and wounding another. The supreme court held that the defendant could not be guilty of cruelty merely because he had wounded the pigeon instead of killing it, though in this case there was nothing more important at stake than the pleasure of the marksman. In his opinion Chief Justice Paxson said:
>
> "'It is doubtless true that much pain and suffering are often caused to different kinds of game by the unskilfulness of sportsmen. A squirrel, badly wounded, may yet crawl to its hole, and suffer for many hours or days, and die. So with birds. They are often badly wounded, and yet manage to get away only to suffer. It was not pretended that the act applied to such cases.'
>
> "In regard to the wounding or killing of birds by sportsmen, either in the woods or in the traps, it is said by the chief justice that 'they were placed here by the Almighty for the use of man. They were not given to him to be needlessly and cruelly tortured, and were there anything in the finding of the jury to show that the object of this association was to torture pigeons, we would not hesitate to sustain the judgment of the court below. But no such purpose appears, nor is there any finding that the defendant was guilty of needless and wanton cruelty.'

### AN ACT GOVERNING VIVISECTION

> "If anything further were needed to clinch the view of the chief justice that there is no violation of the law when the pain is inflicted for a lawful purpose, it would seem to be found in the Pennsylvania act of June 3, 1911, authorizing the search of any building in which it is believed that an act of cruelty to animals is being perpetrated, wherein it is said:
>
> "'Provided that no search warrant shall be issued under the provision of this Act which shall authorize any officer, policeman, constable, agent of a society, or other person, to enter upon or search premises where scientific research work is being conducted by or under the supervision of graduates of reputable scientific schools, or where biological products are being produced for the cure or prevention of disease.'"

The opinion of counsel says further that this legislation is believed to be in consonance with the common understanding of the people in regard to the treatment of animals and as to their having been "placed here by the Almighty," as said by the chief justice, "for the use of man." It seems to be a direct authorization, or at least a recognition of the lawfulness, of the proper use of animals for scientific purposes. Counsel further says that it is difficult to see how a scientific man, who does not cause pain wantonly or cruelly, not for the mere sake of causing suffering, or with the wicked intent to inflict injury, which would seem to be the true meaning of the word "wantonly" in this connection, but who carefully avoids causing pain by rendering the animal insensible through anesthesia, and who does it in the investigation of diseases and their remedies, could be regarded as coming within the meaning and intent of the acts quoted above.

From his opinion it can only be concluded that Judge Bregy's statement of what he believed to be the law is in conflict not only with what has been the common understanding of the people of Pennsylvania, but also with the implications, if not the express language, of the act of the assembly of Pennsylvania on this subject, and with a decision of the supreme court of the state.

### INTERPRETATION OF DECISION

> "In delivering this statement of the law," say the attorneys, "Judge Bregy had not the advantage of argument of counsel, and the opinion of the Pennsylvania lawyers seems to be practically unanimous that it cannot be sustained by the higher courts. The disagreement of the jury will make it impossible for it to be taken to the superior court until after Dr. Sweet is retried. In case the decision stands, however, it would have the most vital effect not only on the advance of medicine in Pennsylvania but on many other activities. If pain can be inflicted on an animal only to relieve the animal's suffering, how is the hunter justified in wounding his quarry; how is the farmer justified in operating on calves, chickens, turkeys or colts to make them better for food or more tractable?
>
> "The most serious consequence, however, would be to check effectively the advance of medical science. In the manufacture and testing of antitoxins and vaccines, the infliction of a certain amount of pain on the lower animals is absolutely necessary. Many diseases such as diphtheria and tuberculosis can be detected in obscure cases only by a test of the secretions of the patient, which includes the use of guinea-pigs. Many valuable drugs such as ergot, which is used to prevent post-partum hemorrhage, can be relied on only in case a sample of each lot manufactured be tested on a living animal.
>
> "It is practically the unanimous opinion of the entire medical profession that without animal experimentation, by far the greater part of the recent advance in medicine, surgery or bacteriology would have been impossible."

### APPLICABILITY OF COMMENT TO PRESENT CASE

This, in abstract, is the opinion of the attorneys on this astonishing opinion of Judge Bregy on an important case.

Much of the foregoing comment should not be necessary in this specific instance, since the case as presented by the Anti-Vivisection Society and the prosecuting attorney did not challenge the legality of animal experimentation under the law of Pennsylvania. The accusation against Dr. Sweet was not that he had violated the law in performing operations causing pain to animals in order to obtain scientific information, but simply that, as superintendent of the animal-house, he had not seen to it that the dogs, after operation, received proper quarters, food and medical attention. Judge Bregy, however, not only did not limit the testimony of the prosecution to the specific charges, but went far out of his way to include, apparently, the whole question of vivisection in his astounding statement of what he believed to be the law.

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**What is Insanity?**—What is vaguely called insanity—a term which physicians would gladly leave to the lawyer if he can use it—is really a wide range of greatly differing conditions and diseases all playing havoc with our organ and functions of conduct and behavior. Many too long neglected lines of research enter into it.—Adolph Meyer: The Purpose of the Psychiatric Clinic.

# Medicolegal

## Antisnuff Act Constitutional—Things of Which Judicial Notice May Be Taken—Tobacco Under the Ban

*(State vs. Olson (N. Dak.), 144 N. W. R. 661)*

The Supreme Court of North Dakota holds constitutional the antisnuff act of that state of 1913, which makes it unlawful to import, manufacture, distribute, or give away any snuff or substitute therefor, under whatever name called, and as defined in this act, which defines snuff as any tobacco that has been fermented, or dried, or flavored, or pulverized, or cut, or scented, or otherwise treated, or any substitute therefor or imitation thereof, intended to be taken by the mouth or nose. The court says the courts can certainly take judicial notice that the use of tobacco in any form is uncleanly, and that its excessive use is injurious. They can take judicial notice of the fact that its use by the young is especially so. Tobacco, in short, is under the ban. This court realizes, of course, that the Supreme Court of the United States refused, in the case of Austin vs. Tennessee, 179 U. S. 343, to hold that tobacco was so much a nuisance as not to be a legitimate subject of interstate commerce. In that case, however, it fully upheld the Supreme Court of Tennessee in holding that it was within the power of the state absolutely to prohibit the sale of cigarettes within its borders when once the original package had been broken, even though the federal Supreme Court refused to take judicial notice that tobacco in the form of cigarettes was more noxious than in any other form.

The courts may take judicial cognizance of the fact that snuff in North Dakota is generally used by holding it between the lip and the gum without mastication, or by plastering it on the gums, and that it is absorbed rather than chewed. Is not the very fact that snuff is generally used by holding it between the lip and the gum without mastication, or by plastering it on the gums, a valid reason for the legislature condemning it, while leaving ordinary chewing tobacco alone? The court believes that it can take judicial notice of the fact that many contend that the use of snuff between the lip and the gum has a tendency to paralyze the nerves of that portion of the face. The court certainly can take cognizance of the fact that the schoolboy can secretly use tobacco in the form of snuff, when he would be liable to be detected in any other form of use. One of the strongest arguments, indeed, in favor of the crusade against the cigarette, is that cigarettes are easily and cheaply obtained, and that the boy is liable to be tempted by that fact, and that the use of tobacco will thus be increased. The same argument is applicable in the case of snuff which is used, not in the nose, but on the gums or between the lip and the gum. So, too, the court cannot be blind to the general fear that drugs and opium are, and certainly can be, easily mingled with snuff, and perhaps are less readily detected in it than in other forms of tobacco.

The modern trend of authority is in favor of the proposition that police laws need not necessarily be omnibus in their character, and that it is permissible to legislate against one form of evil even though many other and similar evils have not been condemned. A beginning must be made somewhere.

## Liability for Removal of Sesamoid Bone Without Authority

*(Rolater vs. Strain (Okla.), 137 Pac. R. 96)*

The Supreme Court of Oklahoma affirms, on the appeal of defendant Rolater, a judgment for $1,000 damages for an alleged trespass to the person of the plaintiff Strain by removing a sesamoid bone without authority. The court says that the plaintiff stepped on a nail which penetrated the great toe of her right foot. Inflammation set in, and, the wound not having healed, some sixty days after the injury, her employer caused the defendant to make an examination of the foot. The defendant advised that an operation was necessary to effect a cure, and that the operation should be made by making an incision in the foot or toe so as to drain the joint and remove any foreign matter that might be found therein. In performing the operation, a sesamoid bone was removed. The cause of action was the removal of that bone. It was not claimed that the operation was unskilfully performed, but that the defendant had agreed before the operation that he would not remove any bones from the foot, and that the removal of the sesamoid bone was without the authority or consent of the plaintiff and constituted a trespass to her person and a technical assault and battery. The defendant answered, among other things, that, before reaching the joint so as to drain it, he found it covered with a sesamoid bone which rendered it impossible to drain the joint without the removal of such bone, which was in an unusual place and its presence could not be ascertained by an examination.

In a civil action by a patient against a surgeon for assault and battery, it is not necessary to show that the surgeon intended, by the act complained of, to injure the patient. It is sufficient if it appears that the act was wrongful and unlawful. Consent of the patient, either express or implied, is necessary to authorize a surgeon to perform a surgical operation on the body of the patient. An operation without such consent is wrongful and unlawful, and renders the surgeon liable in damages. Consent, however, may be implied from circumstances. If the contract claimed was made between the patient and the surgeon, the former had the right to insist on a strict performance of it; the removal of the sesamoid bone by the surgeon was without the consent of the patient and was therefore unlawful and wrongful, and constituted a trespass on her person. The defendant had no authority to remove a sesamoid bone from the plaintiff's foot without her consent, either express or implied; she did not expressly consent, and whether or not her consent was implied from the circumstances was a question for the jury to determine under all the evidence.

The court cannot say, as a matter of law, that the sesamoid bone was not within the contemplation of the parties at the time the consent was given to the operation. That question was properly submitted to the jury for determination. Nor will the court hold, under the evidence, as a matter of law, that there was such an emergency existing as authorized the surgeon to proceed in this operation, after the discovery of this bone in an unusual and unexpected place, and to authorize him to remove it without the consent of the patient. Whether or not such an emergency existed was a question of fact under the evidence for the jury. The amount of the plaintiff's recovery, if she was entitled to recover at all, must depend on the character and extent of the injury inflicted on her, in determining which, the nature of the malady to be healed and the beneficial nature of the operation should be taken into consideration, as well as the defendant's good faith.

## Township Liability for Emergency Services Rendered to Poor Persons

*(Newcomer et al. vs. Jefferson Township (Ind.), 103 N. E. R. 843)*

The Supreme Court of Indiana reverses a judgment for the defendant, sued by a firm of physicians who in October, 1906, rendered emergency services to a boy resident in the township who fell off a freight train on which he was riding without right, his right leg below the knee and a portion of his left foot being crushed with a consequent copious hemorrhage. The court says that it was the contention of the defendant that townships are not liable for relief to poor or necessitous persons outside of public institutions for surgical or medical aid, however necessitous, irrespective of the circumstances or conditions, unless it is directed by the overseer of the poor; that he is the sole and conclusive judge of the necessity, as to whom he will or will not employ to render aid, and whether or not aid shall be rendered.

It may be conceded, as a general rule, that a claim against a county or township can be founded only on a contract with the proper officer acting under authority of a statute. The Act of 1901 covers the subject of temporary aid. By Section 9746 the overseer is required to see that the poor are properly relieved and taken care of. It then provides for cases of necessity, and for prompt provision of medical and surgical attendance and medicines for all poor in his township outside of public institutions. The law is just as mandatory that the relief shall be given at the expense of the township, as it is that the overseer shall provide it. It is therefore the law's mandate in such an emergency as was here shown, which raises an implied liability to one who renders such necessary and prompt service as was here shown, for the reasonable value of the service. It is not a voluntary service, but an obligation imposed by law. When there is an opportunity to communicate with the overseer, or when he can have an opportunity to examine into conditions, then he should be called on.

# *Society Proceedings*

## COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, ATLANTIC CITY, JUNE 22-26.

American Academy of Medicine, Atlantic City, June 19-21.
Am. Assn. of Genito-Urinary Surgs., Stockbridge, Mass., May 15-16.
American Climatological Association, Atlantic City, June 19-20.
American Dermatological Association, Chicago, May 14-16.
American Gastro-Enterological Association, Atlantic City, June 22-23.
American Gynecological Society, Boston, May 19-21.
American Laryngological Association, Atlantic City, May 25-27.
American Laryn., Rhin., and Otol. Society, Atlantic City, June 19-20.
American Medico-Psychological Association, Baltimore, May 26-29.
American Neurological Association, Albany, May 7-9.
American Ophthalmological Society, Hot Springs, Va., May 12-13.
American Orthopedic Association, Philadelphia, June 18-20.
American Otological Association, Atlantic City, May 27-28.
American Pediatric Society, New London, Conn., May 26.
American Proctologic Society, Atlantic City, June 22-23.
American Society of Tropical Medicine, Boston, May 29-30.
American Therapeutic Society, Albany, May 29-30.
American Urological Association, Philadelphia, June 18-20.
Arkansas Medical Society, Eldorado, May 19-22.
Association of American Physicians, Atlantic City, May 12-13.
Conf. of State and Prov. Boards of N. America, Washington, June 19-20.
Connecticut State Medical Society, New Haven, May 20.
Florida Medical Association, Orlando, May 13-15.
Illinois State Medical Society, Decatur, May 19-21.
*Iowa State Medical Society, Sioux City, May 13-15.*
Kansas Medical Society, Wichita, May 6-7.
Maine Medical Association, Portland, June 10-11.
Massachusetts Medical Society, Boston, June 9-10.
Medical Society of the State of North Carolina, Raleigh, June 16.
Missouri State Medical Association, Joplin, May 12-14.
Nat. Assn. for Study and Prev. of Tuberculosis, Washington, May 7-9.
National Association for the Study of Epilepsy, Baltimore, May 25.
Nebraska State Medical Association, Lincoln, May 12-14.
New Hampshire Medical Society, Concord, May 13.
North Dakota State Medical Association, Grand Forks, May 13-14.
Ohio State Medical Association, Columbus, May 5-7.
Oklahoma State Medical Association, Guthrie, May 12-14.
Rhode Island Medical Society, Providence, June 4.
South Dakota State Medical Association, Watertown, May 26-28.
Texas State Medical Association, Houston, May 12-14.
West Virginia State Medical Association, Bluefield, May 13-15.

## INTERNATIONAL SURGICAL ASSOCIATION

*Fourth Congress held in New York, April 13-16, 1914*

The President, PROF. A. DEPAGE, Brussels, Belgium, in the Chair

### Election of Officers

President of the next Congress, Dr. W. W. Keen, Philadelphia; president of the association, Prof. Charles Willems, Ghent; treasurer, Prof. J. Lorthioir, Brussels; secretary, Prof. L. Mayer, Brussels.

The next meeting will be held in Paris in September, 1917.

### Military Surgery: President's Address

PROF. A. DEPAGE, Brussels: The surgery of war owes much to America. In 1861 the sanitary commission appointed by President Lincoln played an important part in the course of events. Since then new duties have arisen with which the surgeons of all countries should reckon. We should be employed in perfecting our sanitary organizations. The international understanding should be reinforced more and more by the organization of help for the victims of war. Without doubt such an understanding already exists, the Red Cross is the most striking illustration of this. At the time of the last Balkan war we saw ambulances which had come from all countries, to repair to the seat of war. The fate of the wounded depends more than all on the aid which is given in the front of the battle, for as long as the engagement lasts the exposed ground is inaccessible for the ambulance men, of whom more than one has sacrificed his life in spite of all precautions taken; thus hours pass during which the men remain without help.

The following is without doubt the solution: Each of the combatants must carry with him side by side with his cartridges the articles necessary for the first dressing. This solution has already been adopted by different countries. The experience of late wars has proved only too clearly that before all the sanitary education of the soldier must be improved. He must realize the dangers of infection by earth, dust and water; he must know that in case of a wound in the abdomen it is better to rest motionless, even for hours, than to walk as far as a station. The military instruction of a soldier in the future will not be complete unless it comprises an acquaintance of the necessary measures to take for his personal safety, and especially the elementary rules of asepsis and antisepsis. The making general of these instructions will result in a great saving of human life. We who are brought in close contact with the dreadful miseries of this poor human race find it more and more difficult to understand why men do not employ their reasoning powers to a good end by ceasing this destruction of one another. We hope soon to see the "United States of Europe" in friendly intercourse with the United States of America," and we reserve our deepest admiration for those who are working to assure universal peace.

## SYMPOSIUM ON AMPUTATIONS

### Amputations of the Arm and Forearm

PROF. OSKAR WITZEL, Düsseldorf, Germany: The indication for an amputation can be fixed only if one is in touch with all the modern resources capable of assuring the preservation of wounded, diseased and deformed limbs. The introduction into surgery of the antiseptic treatment of open wounds, contusions and fractures by von Bergmann allows the postponement of amputation in time of war as well as in ordinary practice. The processes of suture, resection, anastomosis and transplantation of the blood-vessels enable the preservation of parts of limbs wounded or affected by arteriosclerosis. In cases of suspected wounds, Bier's method of prophylactic hyperemia and his method of hyperemia, together with small carefully made incisions in the suppurating parts, preserve limbs in which septicemia and pyemia would otherwise have demanded amputation. Modern operative orthopedia restores the power of useless limbs by means of osteotomy and musculotendinous transplantation. In cases of simple tumors and even in myeloid sarcoma, excision followed by transplantation is more than ever jusified. Even in malignant tumors the adjunction of roentgenotherapy and chemotherapy allows the hope of a less radical position than formerly. Amputation of itself can never endanger life and should procure for the patient a useful and painless stump. The danger of the actual operation is decreased by increasing the resisting powers of the patient, whether the case is one of emergency or not, by complete arrest of hemorrhage in cases of accident, and by strengthening the heart-action by camphorated oil, saline infusions, inhalation of oxygen, application of heat and respiratory exercise. The choice of an anesthetic, the preservation of warmth during the operation and Esmarch's tourniquet are also important factors. General anesthesia is preferable on account of the psychic effect resulting from amputation. Hackenbruch's process is suitable for minor operations, and Braun's endoneural anesthesia for more extensive removals, always with the addition of narcotics and with strict attention to discipline in the working of the operating-theater. Bier's rachianesthesia will rarely be indicated.

After the operation, life would be saved by simple and thorough asepsis. The section of tissues should be clean; in order not to injure their vitality it is necessary to work with gentleness, heat and moisture. For this end the use of antiseptics must be rejected, and there must be a strict

# Medicolegal

## Antisnuff Act Constitutional—Things of Which Judicial Notice May Be Taken—Tobacco Under the Ban

*(State vs. Olson (N. Dak.), 144 N. W. R. 661)*

The Supreme Court of North Dakota holds constitutional the antisnuff act of that state of 1913, which makes it unlawful to import, manufacture, distribute, or give away any snuff or substitute therefor, under whatever name called, and as defined in this act, which defines snuff as any tobacco that has been fermented, or dried, or flavored, or pulverized, or cut, or scented, or otherwise treated, or any substitute therefor or imitation thereof, intended to be taken by the mouth or nose. The court says the courts can certainly take judicial notice that the use of tobacco in any form is uncleanly, and that its excessive use is injurious. They can take judicial notice of the fact that its use by the young is especially so. Tobacco, in short, is under the ban. This court realizes, of course, that the Supreme Court of the United States refused, in the case of Austin vs. Tennessee, 179 U. S. 343, to hold that tobacco was so much a nuisance as not to be a legitimate subject of interstate commerce. In that case, however, it fully upheld the Supreme Court of Tennessee in holding that it was within the power of the state absolutely to prohibit the sale of cigarettes within its borders when once the original package had been broken, even though the federal Supreme Court refused to take judicial notice that tobacco in the form of cigarettes was more noxious than in any other form.

The courts may take judicial cognizance of the fact that snuff in North Dakota is generally used by holding it between the lip and the gum without mastication, or by plastering it on the gums, and that it is absorbed rather than chewed. Is not the very fact that snuff is generally used by holding it between the lip and the gum without mastication, or by plastering it on the gums, a valid reason for the legislature condemning it, while leaving ordinary chewing tobacco alone? The court believes that it can take judicial notice of the fact that many contend that the use of snuff between the lip and the gum has a tendency to paralyze the nerves of that portion of the face. The court certainly can take cognizance of the fact that the schoolboy can secretly use tobacco in the form of snuff, when he would be liable to be detected in any other form of use. One of the strongest arguments, indeed, in favor of the crusade against the cigarette, is that cigarettes are easily and cheaply obtained, and that the boy is liable to be tempted by that fact, and that the use of tobacco will thus be increased. The same argument is applicable in the case of snuff which is used, not in the nose, but on the gums or between the lip and the gum. So, too, the court cannot be blind to the general fear that drugs and opium are, and certainly can be, easily mingled with snuff, and perhaps are less readily detected in it than in other forms of tobacco.

The modern trend of authority is in favor of the proposition that police laws need not necessarily be omnibus in their character, and that it is permissible to legislate against one form of evil even though many other and similar evils have not been condemned. A beginning must be made somewhere.

## Liability for Removal of Sesamoid Bone Without Authority

*(Rolater vs. Strain (Okla.), 137 Pac. R. 96)*

The Supreme Court of Oklahoma affirms, on the appeal of defendant Rolater, a judgment for $1,000 damages for an alleged trespass to the person of the plaintiff Strain by removing a sesamoid bone without authority. The court says that the plaintiff stepped on a nail which penetrated the great toe of her right foot. Inflammation set in, and, the wound not having healed, some sixty days after the injury, her employer caused the defendant to make an examination of the foot. The defendant advised that an operation was necessary to effect a cure, and that the operation should be made by making an incision in the foot or toe so as to drain the joint and remove any foreign matter that might be found therein. In performing the operation, a sesamoid bone was removed. The cause of action was the removal of that bone. It was not claimed that the operation was unskilfully performed, but that the defendant had agreed before the operation that he would not remove any bones from the foot, and that the removal of the sesamoid bone was without the authority or consent of the plaintiff and constituted a trespass to her person and a technical assault and battery. The defendant answered, among other things, that, before reaching the joint so as to drain it, he found it covered with a sesamoid bone which rendered it impossible to drain the joint without the removal of such bone, which was in an unusual place and its presence could not be ascertained by an examination.

In a civil action by a patient against a surgeon for assault and battery, it is not necessary to show that the surgeon intended, by the act complained of, to injure the patient. It is sufficient if it appears that the act was wrongful and unlawful. Consent of the patient, either express or implied, is necessary to authorize a surgeon to perform a surgical operation on the body of the patient. An operation without such consent is wrongful and unlawful, and renders the surgeon liable in damages. Consent, however, may be implied from circumstances. If the contract claimed was made between the patient and the surgeon, the former had the right to insist on a strict performance of it; the removal of the sesamoid bone by the surgeon was without the consent of the patient and was therefore unlawful and wrongful, and constituted a trespass on her person. The defendant had no authority to remove a sesamoid bone from the plaintiff's foot without her consent, either express or implied; she did not expressly consent, and whether or not her consent was implied from the circumstances was a question for the jury to determine under all the evidence.

The court cannot say, as a matter of law, that the sesamoid bone was not within the contemplation of the parties at the time the consent was given to the operation. That question was properly submitted to the jury for determination. Nor will the court hold, under the evidence, as a matter of law, that there was such an emergency existing as authorized the surgeon to proceed in this operation, after the discovery of this bone in an unusual and unexpected place, and to authorize him to remove it without the consent of the patient. Whether or not such an emergency existed was a question of fact under the evidence for the jury. The amount of the plaintiff's recovery, if she was entitled to recover at all, must depend on the character and extent of the injury inflicted on her, in determining which, the nature of the malady to be healed and the beneficial nature of the operation should be taken into consideration, as well as the defendant's good faith.

## Township Liability for Emergency Services Rendered to Poor Persons

*(Newcomer et al. vs. Jefferson Township (Ind.), 103 N. E. R. 843)*

The Supreme Court of Indiana reverses a judgment for the defendant, sued by a firm of physicians who in October, 1906, rendered emergency services to a boy resident in the township who fell off a freight train on which he was riding without right, his right leg below the knee and a portion of his left foot being crushed with a consequent copious hemorrhage. The court says that it was the contention of the defendant that townships are not liable for relief to poor or necessitous persons outside of public institutions for surgical or medical aid, however necessitous, irrespective of the circumstances or conditions, unless it is directed by the overseer of the poor; that he is the sole and conclusive judge of the necessity, as to whom he will or will not employ to render aid, and whether or not aid shall be rendered.

It may be conceded, as a general rule, that a claim against a county or township can be founded only on a contract with the proper officer acting under authority of a statute. The Act of 1901 covers the subject of temporary aid. By Section 9746 the overseer is required to see that the poor are properly relieved and taken care of. It then provides for cases of necessity, and for prompt provision of medical and surgical attendance and medicines for all poor in his township outside of public institutions. The law is just as mandatory that the relief shall be given at the expense of the township, as it is that the overseer shall provide it. It is therefore the law's mandate in such an emergency as was here shown, which raises an implied liability to one who renders such necessary and prompt service as was here shown, for the reasonable value of the service. It is not a voluntary service, but an obligation imposed by law. When there is an opportunity to communicate with the overseer, or when he can have an opportunity to examine into conditions, then he should be called on.

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# *Society Proceedings*

## COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, ATLANTIC CITY, JUNE 22-26.

American Academy of Medicine, Atlantic City, June 19-21.
Am. Assn. of Genito-Urinary Surgs., Stockbridge, Mass., May 15-16.
American Climatological Association, Atlantic City, June 19-20.
American Dermatological Association, Chicago, May 14-16.
American Gastro-Enterological Association, Atlantic City, June 22-23.
American Gynecological Society, Boston, May 19-21.
American Laryngological Association, Atlantic City, May 25-27.
American Laryn., Rhin., and Otol. Society, Atlantic City, June 19-20.
American Medico-Psychological Association, Baltimore, May 26-29.
American Neurological Association, Albany, May 7-9.
American Ophthalmological Society, Hot Springs, Va., May 12-13.
American Orthopedic Association, Philadelphia, June 18-20.
American Otological Association, Atlantic City, May 27-28.
American Pediatric Society, New London, Conn., May 26.
American Proctologic Society, Atlantic City, June 22-23.
American Society of Tropical Medicine, Boston, May 29-30.
American Therapeutic Society, Albany, May 29-30.
American Urological Association, Philadelphia, June 18-20.
Arkansas Medical Society, Eldorado, May 19-22.
Association of American Physicians, Atlantic City, May 12-13.
Conf. of State and Prov. Boards of N. America, Washington, June 19-20.
Connecticut State Medical Society, New Haven, May 20.
Florida Medical Association, Orlando, May 13-15.
Illinois State Medical Society, Decatur, May 19-21.
Iowa State Medical Society, Sioux City, May 13-15.
Kansas Medical Society, Wichita, May 6-7.
Maine Medical Association, Portland, June 10-11.
Massachusetts Medical Society, Boston, June 9-10.
Medical Society of the State of North Carolina, Raleigh, June 16.
Missouri State Medical Association, Joplin, May 12-14.
Nat. Assn. for Study and Prev. of Tuberculosis, Washington, May 7-9.
National Association for the Study of Epilepsy, Baltimore, May 25.
Nebraska State Medical Association, Lincoln, May 12-14.
New Hampshire Medical Society, Concord, May 13.
North Dakota State Medical Association, Grand Forks, May 13-14.
Ohio State Medical Association, Columbus, May 5-7.
Oklahoma State Medical Association, Guthrie, May 12-14.
Rhode Island Medical Society, Providence, June 4.
South Dakota State Medical Association, Watertown, May 26-28.
Texas State Medical Association, Houston, May 12-14.
West Virginia State Medical Association, Bluefield, May 13-15.

## INTERNATIONAL SURGICAL ASSOCIATION

*Fourth Congress held in New York, April 13-16, 1914*

The President, PROF. A. DEPAGE, Brussels, Belgium, in the Chair

### Election of Officers

President of the next Congress, Dr. W. W. Keen, Philadelphia; president of the association, Prof. Charles Willems, Ghent; treasurer, Prof. J. Lorthioir, Brussels; secretary, Prof. L. Mayer, Brussels.

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## SYMPOSIUM ON AMPUTATIONS

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After the operation, life would be saved by simple and thorough asepsis. The section of tissues should be clean; in order not to injure their vitality it is necessary to work with gentleness, heat and moisture. For this end the use of antiseptics must be rejected, and there must be a strict hemostasia. Cardiac tonics and respiratory exercise judiciously applied prevent thrombo-embolism. To obtain a painless and serviceable stump, clean section should be made well above the nerve-stumps; in disarticulation and epiphyseal amputation, avoiding the opening of the marrow canal prevents the formation of neuritis by fixation of the nerve-roots on the surface of the sectioned bone; sealing the marrow canal by the processes of Bier, Wilms, Ritter or Bunge also prevents this accident. Massage of the soft tissues and early utilization of the stump in temporary prostheses serves the same purpose. For a good utilization of the stump as a lever for prosthetic apparatus, regard must be taken of the unequal retraction of the muscles and tendons. The suture of neighboring muscles and those of opposing ones between themselves helps to maintain the functional equilibrium. Certain tendinous groups, particularly in the forearm, may be transferred into rings covered anew with skin, giving the most life-like prostheses. The creation of levers possessing active movements, and digital autoplasty give hope of remarkable success.

### Amputations of the Leg

Dr. J. F. Binnie, Kansas City, Mo.: The level at which amputation of the leg below the knee is performed has no influence on the vital dangers of the operation; hence the choice as to the method and site of such an amputation depends on the lesion for which the operation is required and on the use that is to be made of the resulting stump. No particular improvement has been made in the methods of amputating below the ankle-joint. If gangrene is the occasion for the amputation, the site of operation will depend largely on the extent of the vascular disturbance, and this is determined by the use of Moschowicz's method of examination or by Sandrock's method, which is much simpler. The use which is to be made of the stump is a factor of prime importance in the choice of a site of amputation. If the financial condition of the patient is such that he cannot indulge in a more or less expensive artificial limb, then it is of vast moment to save as much of the limb as possible and to provide him with a good stump; one that will withstand abuse and on which the weight of the body can be supported without harm resulting. The types of these operations are Symes' and Pirogoff's.

If the patient can afford a good artificial limb it is better to amputate at a higher level so that there may be room between the stump and the ground for such an apparatus. The improvements attained in amputations of the leg are all in the attainment of better weight-bearing stumps, and the designs of artificial limbs must in the future adapt themselves to these improvements. Hirsch's and Bunge's aperiosteal treatment of the bony stump in any amputation, and osteoplastic amputations under particularly favorable circumstances, are very valuable means toward obtaining ideal weight-bearing stumps. All the advantages of Bier's operation can be obtained easily and safely by covering the cut end of the tibia with a free transplant of bone.

### Amputations of the Leg and Foot

Dr. M. Durand, Lyons, France: Any one of the three middle toes may be amputated by disarticulation of the second phalanx, by metatarsophalangeal disarticulation, or by amputation in continuity of the first phalanx. These operations do not alter the function of the foot. No other operation is recommended. These conditions also apply to the small toe. The great toe is amenable to all operations in continuity or contiguity. Total disarticulation, especially if carried out by the subperiosteal method, gives excellent results. The walk is but slightly affected by the simultaneous disarticulation of the five toes. As to the metatarsal bones, amputation of one of the four last metatarsal bones in continuity or by disarticulation leaves but small difficulty. The disarticulation of the first metatarsus is a little more serious from the functional point of view. It has not, however, the disadvantages ascribed to it. The subperiosteal method is particularly favorable in this case. Not more than two of the metatarsal bones must be amputated. Transmetatarsal and tarsometatarsal amputations, according to Lisfranc, generally give excellent functional results.

Amputations and disarticulations which affect the anterior tarsus without suppressing it entirely must be recommended. Chopart's disarticulation is an unreliable operation; it risks a reversion of the stump and it can, if not entirely proscribed, at least be reserved only for very exceptional conditions. Ricard's operation and subastragaloid disarticulation are both excellent and have practically the same value. The osteoplastic operations on the posterior tarsus (Sebiliot, Pirogoff, Pasquier-Lefort) preserve the normal bearing on the plantar tissues and furnish also very good results. The tibiotarsal disarticulation carried out according to Ollier's subperiosteal method gives supple and enduring stumps. It leaves such good functional results that it may be considered equal to the greater part of the more conservative operations of the posterior tarsus. Of supramalleolar amputations and amputations of the lower third of the leg it may be said that they are of slight mutilation, rendering means of provision of solid skin tissues obtained from the heel; they sometimes permit the direct bearing of the stump extremity on the prosthetic apparatus. They have a usefulness very similar to the tibiotarsal disarticulations because of the length of the leg-lever and the power of the muscles which they preserve. Amputations of the middle third of the leg do not admit of the terminal weight-bearing if performed according to classical methods. There is some hope that the former osteoplastics will improve in their results. Amputations of the leg above the middle part have ceased to deserve the name of "amputation at the seat of election" and should be performed only when the extent of the injuries does not permit of a lesser sacrifice. Larry's intracondylar amputation is preferable to the disarticulation of the knee.

Amputations of the leg and foot owe their gravity solely to the affection which necessitates their performance and to the general condition of the patient. The progress of surgical technic and of asepsis has enabled a more correct adaptation of the stumps to the prosthetic apparatus and a considerable increase of the utilization of these stumps. Prosthetic apparatus in their technical realization have considerably improved the utilization of stumps in amputation of the foot, and especially of the leg. Owing to this progress we can now usefully perform amputations of the middle and lower third of the leg.

### Amputations of the Leg and Foot

Dr. E. Ranzi, Vienna: The most important condition for the portability of the stump is formed by the removal of the excessive formation of callus on the surface of the stump. Bier and Wilms avoid this by closing the marrow-cavity, the former using a flap of periosteum and bone, the latter using sinew; Bunge accomplishes the same result by the removal of the periosteum and endosteum on the lower stump end. The removal of the cut outside portable surface, and the prevention of adhesions between the soft parts and the stump are of less importance for the portability of the stump. Of the methods that are most sought after for portability, that of Bunge seems to be the best, because on the one hand it is the simplest and on the other the results are the best if no *prima intentio* occurs. In every method of operation it is of the greatest importance for the results that the patient take walking exercise and has massage, as well as that he should put his weight on the wooden leg as soon as possible.

### Discussion on Amputations

Prof. A. Depage, Brussels: One of the greatest advances of modern surgery in times of war is without question the substitution of more conservative surgery for the brutal amputations formerly in use. On the French side during the Crimean War, in 22,521 wounds of the extremities there were 6,577 amputations; on the side of the English there were 777 amputations in 4,764 wounds; during the Civil War in America there were over 30,000 amputations done, and in the Franco-Prussian War the percentage was still higher. Since the danger of amputation on the battle-field is understood it has become exceptional. The ambulance service in times of war is often manned by young practitioners impatient for action and eager to perfect themselves in the art of operating. During the Russo-Japanese War, Vreden and Haga interdicted all operation on the field that were not absolutely necessary, and it was not otherwise during the last war at Constantinople. It should be repeated on every occasion that the wounded man in time of war has more right to our protection than any other. The field of battle should not be a field of experience for the surgeon.

The practice of amputation in times of war may be divided into three categories: primary, intermediate, and secondary or tertiary operations. The primary are those necessitated on the field of battle by the extent of the lesion and the imminent peril to life. The immediate treatment of wounds on the field of battle should be limited as far as possible to the prevention of hemorrhage and infection. Applications of iodin dressings and tamponing with 10 per cent. zinc. chlorid solution are useful for this purpose. The intermediate operations are those practiced between the second and ninth day, after the chance of infection has passed. Even then we should not sacrifice a limb on the first manifestation of fever. In our ambulance service in the recent war not a single amputation was done because of suppuration following a wound by a projectile. Most amputations were done because of grave infection following gangrene. The latter was not caused by coagulation, as was formerly thought, but by compression and infiltration produced by the edema due to long marches. Amputation in these cases was not always urgent; sometimes continuous lavage, friction with alcohol and rest in bed would result in the disappearance of the edema. In doing an amputation for gangrene the question was not so much whether to do an osteoplastic or a periosteal operation as how to secure the best nutrition possible. Secondary and tertiary amputations are practiced when the wound is healed and are necessitated especially by deformities, retracted cicatrices, neuroses, etc. Here the surgeon is guided by general hospital practice.

Dr. A. Lambotte, Brussels: It is not my practice to use the Esmarch bandage in doing amputations. It renders operation on the thigh long and difficult. In its place I use three or four ligatures to keep the field dry. I clamp both the femoral artery and the femoral vein, and, in addition, it is necessary to ligate two or three of the muscular arteries. There is no bleeding after the operation with this procedure. In amputation of the foot I find the subastragaloid disarticulation of Roux the operation of choice. I have used it in twenty cases with success. The cicatrix is well placed and the shortening minimized. I have had recourse on one occasion to a dermoplastic operation by the method of Keetley for an incurable ulcer of the leg, and secured a perfect result.

Dr. Zahradnicky, Memecky Brod: We have had 255 amputations of the larger joints with 23 deaths, or a mortality of 9 per cent. In this series there were 4 transmetacarpal, 5 metacarpal, and 3 amputations of the hand with no mortality; there were 24 antibrachial amputations, with 2 deaths; 25 brachial, with 2 deaths; 4 interscapular, without mortality, making in all 65 operations on the upper extremities with 4 deaths. Of the amputations on the lower extremities there were 60 femoral amputations, with 10 deaths; 70 crural, with 5 deaths. They did 46 femoral operations according to Gritti with 3 deaths; 10 according to Pirogoff's method, without death; one according to Syme, without death; and according to Chopart, 1 amputation, with 1 death; 1 according to Lisfranc, and 1 metatarsal, without death, making 190 cases with a mortality of 10 per cent. The highest mortality was from gangrene, there being 12 deaths in 31 cases of operation, a mortality of 38.7 per cent.

Dr. W. H. Hutchings, Detroit: A method which has given me marked success in infected cases is to open freely and make an autogenous vaccine, which is administered as soon as possible. A dressing of 6 per cent. salt and 1 per cent. sodium citrate in distilled water is kept on the wound. This provides continuous drainage, and, together with the increased bactericidal power of the blood due to the vaccines, I believe has saved many lives.

Dr. Willy Meyer, New York: I wish to call attention to the possibility of avoiding amputation, especially in endarteritis in young persons, by means of hypodermoclysis of Ringer's solution by the Ito-Kobar method. Intramuscular injections of from four to five hundred c.c. at each injection have been effective in several cases that have been under my care. If hypodermoclysis is unsuccessful, one may attempt an arteriovenous anastomosis, and, this failing, one may then resort to amputation.

Dr. M. L. Harris, Chicago: The mortality following amputation is high in the aged for gangrene and the severe crushing injuries involving the thigh. Such amputations should be done under nerve-blocking rather than under general anesthesia, because shock is obviated.

Dr. William L. Estes, South Bethlehem, Pa.: The blood-pressure is an important indication as to the advisability of attempting operation. It is useless to operate if the blood-pressure is 80 mm. or lower. When the blood-pressure is above 80 mm. one may operate. This is especially true in crushing injuries. In order to obtain a bloodless field I no longer use constriction, but employ the gradual dissection method, tying off the vessels as I proceed. With this method there is no oozing after the operation. Out of 724 amputations I have done few by the subperiosteal method, but have nearly always used a periosteal flap. Of this number only eighteen came to a second operation from any cause whatever. The nerve should be cut 4, 5 or 6 cm. above the section of the bone. In 42 transtarsal amputations I have used Chopart's operation thirty-six times, and all the patients did well.

*(To be continued)*

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## TENNESSEE STATE MEDICAL ASSOCIATION

*Eighty-First Annual Meeting, held at Memphis, April 7-9, 1914*

The President, Dr. W. D. Haggard, Nashville, in the Chair

### The Drug Habit in Tennessee

Dr. Lucius P. Brown, Nashville: The fundamental idea of the Tennessee law has been to restrict the handling of narcotics to physicians and pharmacists for medical purposes only, and to require the keeping of books on the purchase and sale of the drugs. The various other provisions of the law are subsidiary to these central ideas. The three months of operation of the Tennessee law have resulted in uncovering to a rather remarkable degree the prevalence of the disease. Up to April 1 the pure food and drug department has issued 1,403 permits to refill prescriptions, of which very few were renewals of existing permits. It has been estimated that between 1 and 2 per cent. of the population is infected. The books of our department show that of these 1,403 addicts, 1,226 are users of morphin, 97 users of laudanum, 71 of gum opium, 8 of heroin, and 1 of codein. The average dose of the morphin addict is about 8½ grains a day. The aggregate usage is 609 ounces per month, which at the usual retail price of 6 grains for 10 cents would amount to $4,872 per month, or $58,464 per year spent by these registered addicts.

#### DISCUSSION

Dr. George E. Pettly, Memphis: Crothers has estimated that 15 per cent. of the members of the medical profession are using drugs. I think that this is entirely too high. I have tried to form an estimate and I am not able to say that more than 3 or 5 per cent. of the medical profession use drugs. Heretofore the greatest difficulty has been to get men self-sustaining after they are put back onto their feet. The slightest ailment will prompt these persons to get more of the drug. No physician should prescribe an opiate for them unless they are in an extreme condition in which its therapeutic impression is absolutely necessary.

Dr. F. A. Richards, Sparta: I should like to know what course a physician should adopt with persons who have formed the habit and have been put on their feet again, or who have asserted that they have quit the use of drugs. These persons easily drop back into the habit.

**Dr. E. T. Newell**, Chattanooga: Dr. Brown has told us that most of these addicts are produced by the doctors themselves. It is appalling. We should cooperate with the state officials in seeing that the number of the drug addicts in this state is reduced to practically nil.

**Dr. S. T. Hardison**, Lewisburg: Some restriction ought to be placed on the practice of physicians who take morphin.

**Dr. L. E. Burch**, Nashville: In cases of acute pain, instead of using morphin or opium, I would suggest that apomorphin be used, 1/40 grain, repeated every fifteen minutes until two or three or more doses are given. You will be astonished at the results you will obtain. I have used it in gall-stone and kidney colic with gratifying results.

**Dr. L. P. Brown**, Nashville: When the country physician dispenses in such cases—and by dispensing I do not mean bedside administration, but leaving behind a portion of the drug to be taken after the doctor leaves the house—the physician should always make a note of the purchase and how the drug is administered. When a physician dispenses drugs he must keep a record the same as a druggist.

**Dr. George H. Price**, Nashville, introduced a resolution, which was adopted, earnestly endorsing the antinarcotic law of Tennessee and pledging the association to aid the efficient enforcing official, Dr. L. P. Brown, pure food and drug inspector, to the end that the people of the state be prevented from contracting the drug habit and freeing those already addicted from their slavery.

### Arteriosclerosis of the Cerebral Vessels

**Dr. John Phillips**, Cleveland: The treatment of cerebral arteriosclerosis is chiefly concerned with the prevention of conditions which lead to its development. Cases of syphilis should have long and thorough treatment. Patients with signs of vascular degeneration should avoid excessive work, alcohol and tobacco. The diet should be light, the bowels kept freely open and moderate outdoor exercises should be indulged in. The advantage of careful attention to the bowels is shown in one of my cases in which the attacks of intermittent closing of the cerebral vessels ceased after thorough catharsis. In the cases of arterial hypertension should nitroglycerin be used? If the diastolic pressure is high and increased systolic pressure is a compensatory measure, to lower the latter under these conditions would simply decrease the blood-flow to the various organs. A low systolic pressure with a high diastolic pressure would be an indication that the former had at some time been higher, and that now the myocardium was failing and digitalis or other cardiac stimulants would be indicated. With our present studies of diastolic and pulse-pressure, the latter being the difference between the systolic and diastolic readings, the field of usefulness for nitrites has been limited to the administration for relief of such symptoms as headache, temporary aphasia and monoplegia or hemiplegia due to intermittent closing of vessels. There is no good evidence that iodids are of value, except in cases of syphilitic origin.

A practical point I should like to emphasize is the practice of massage in the prevention of contractures after hemiplegia. If massage with passive movements is started during the second or third week and continued for months or longer, the troublesome contractures can be prevented. In cases of cerebral hemorrhage in which there are evidences of greatly increased intracranial tension with approaching death, Cushing has advised cranial decompression and in some cases he has attempted to evacuate the clot. The result in some cases has been sufficiently encouraging to warrant further trial.

#### DISCUSSION

**Dr. John A. Witherspoon**, Nashville: I know of no disease of middle life or past middle life with which we come in contact more frequently than those changes in the vascular supply of the brain. Just how much we can differentiate those focal changes, or just how much we may have circumscribed atheroma, is difficult to say. I have always felt that the vast majority of cases of marked atheromatous change before 40 years of age were of syphilitic origin. American life plays a very strong part in bringing about these changes. The majority of cases can easily be diagnosed, and yet many times I have seen cases in which changes in the vascular system of the brain were quite difficult to differentiate from cerebral tumor. We have no explanation of the apparently beneficial effect of the iodids on the arterial system, but we do know that they more frequently help to control the pain of aneurysm; that they frequently act on the vascular system to give comfort. The nitrites we understand, but the iodids we do not, yet I think they are valuable in those cases of arteriosclerosis of syphilitic origin.

**Dr. H. W. Witt**, Nashville: A distinction between the neurasthenic state and the stage of general mental and physical weakness from arterial changes can be made by an observation of the blood-pressure and a careful examination of the heart and peripheral arteries. At the same time, there are peculiarities of mental instability that enable us to make a proper diagnosis. In such cases it is risky to make a favorable prognosis. I agree with Dr. Witherspoon as to the use of the iodids. I have derived definite value from the iodids, not in reducing blood-pressure but in cases with dizziness and slight conscious disturbances.

**Dr. John Phillips**, Cleveland: I believe that the effect of the iodids in arteriosclerosis is very much overestimated. We know from the studies of Longcope and others that 80 per cent. of the cases of aneurysm are syphilitic in origin, and it is in the syphilitic cases that we get the best results from the use of iodids.

*(To be continued)*

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## MEDICAL ASSOCIATION OF GEORGIA

*Sixty-Fifth Annual Meeting, held at Atlanta, April 15-17, 1914*

The President, Dr. Ralston Lattimore, Savannah, in the Chair

### Officers Elected

The following officers were elected for the ensuing year: President, Dr. W. B. Hardman, Commerce; vice-presidents, Dr. C. L. Williams, Columbus; Dr. F. D. Patterson, Cuthbert; secretary-treasurer, Dr. William C. Lyle, Augusta. Place of next meeting, Macon.

### Suprapubic Prostatectomy

**Dr. W. L. Champion**, Atlanta: The majority of operators prefer the suprapubic operation. The approach is easier, the operation more thorough, and the after-results better. On account of the age of the patients suffering with hypertrophy of the prostate, there will always be mortality from operative interference, but if all of the cases are carefully studied and selected for operation, the mortality will grow less, and the functional results will be more satisfactory.

#### DISCUSSION

**Dr. Edgar G. Ballenger**, Atlanta: I would like to emphasize the importance in prostatic work of removing the gland before the patient's health is impaired by back pressure, thus damaging the kidneys. No one thing will lessen the mortality to a greater extent than to remove the prostate before the kidneys are seriously damaged. If the gland is not much enlarged, with residual urine, it is almost certain the patient will have trouble with the prostate. Therefore, I would urge that operation be not postponed beyond a reasonable period.

**Dr. C. C. Harrold**, Macon: A number of patients with hypertrophy of the prostate unquestionably die without operation. As to the use of the retention catheter, I have had two patients in the last two years where I found the catheter could not be introduced. In both cases suprapubic drainage was instituted for three or four days. In one case the drainage was left in for seven days before operation.

**Dr. E. G. Jones**, Atlanta: A patient with enlarged prostate is said to suffer from renal inactivity by reason of the back pressure, and the relief of this back pressure is apt to be followed by marked depression in renal function, which may be troublesome and cause death.

### Anoci-Association Anesthesia

**Dr. E. C. Davis**, Atlanta: We have found the local use of novocain solution which Crile recommends very advantageous, but the quinin and urea solution often acts as an irritant, causing a tendency to infection or discharge of a serous secretion which is quite annoying to the patient. My experience covers 280 cases, and I believe that it is only the beginning in a line of work which will prove of inestimable value in the future.

### Oil-Ether Colonic Anesthesia

**Dr. Julian C. Pate**, Valdosta: The advantages of this method of anesthesia over others are: 1. The element of apprehension and fear caused by placing a mask over the face as in inhalation anesthesia is avoided. 2. No expensive apparatus is required. 3. The after-effects of the anesthetic are reduced to a minimum. 4. The more complete relaxation is secured. 5. The limits of safety are widely extended compared with other methods. 6. A more even plane of surgical anesthesia is maintained. I have used this anesthetic in three cases with satisfactory results.

### The Management of Pregnancy and Normal Labor

**Dr. Baxter Moore**, Atlanta: The care of the pregnant woman should commence as soon as the patient has reason to believe that she has conceived. The patient should be made to feel that her condition is a normal physiological condition. Her mental surroundings should be as cheerful as possible. Labor should take place certainly not later than 282 days after conception. The patient should be allowed time to give birth to her child after labor has been started. Do not use the obstetric forceps if it is possible to avoid the use of them.

### The Treatment and Mortality of Cerebrospinal Meningitis

**Dr. J. E. Paulin**, Atlanta: The basis of this study is the collected results of 72 cases of cerebrospinal meningitis admitted to the contagious wards of the Grady Hospital between April and July, 1913, and eight cases occurring in my private practice. Of the eight cases in my private practice, seven were seen within twenty-four hours of the onset of the disease, with no mortality. The eighth patient was seen seven days after the onset of illness and was dying at the time I was called. The mortality in private cases is lower than in hospital cases because the treatment is instituted much earlier. There is practically no disturbance occasioned the patient by the use of the antimeningitis serum. The character of the spinal fluid and the relation of the meningococci to the pus cells, whether they are intracellular or extracellular, gives some indication of the severity of the infection. Many of the extracellular organisms, after the administration of one or two doses of the serum, generally means a very severe infection, and the chances are that the serum will do little or no good. In the cases where the fluid becomes turbid, the organisms became intracellular and the pus-cells fail to stain as deeply after two or three doses of the serum, the serum should be given until the spinal fluid is free from organisms. Drugs offer very little hope except the relief of symptoms. The mortality depends on two factors: (a) the age of the patient, meningitis being very fatal to children under five years of age and individuals over fifty; (b) the chances of recovery are better when the serum is administered freely. The mortality gradually increases as the length of time increases between the onset of the disease and the administration of the serum.

#### DISCUSSION

**Dr. Stewart R. Roberts**, Atlanta: A valuable point in reaching a conclusion as to the treatment is the necessity for remembering that antimeningitis serum is applicable only in cases of acute cerebral epidemic meningitis. Meningitis may be caused by five different germs. The staphylococcus may cause typical meningitis, and so may the streptococcus. It seems, at times, difficult to differentiate by the clinical symptoms between acute pneumococcic meningitis, which is practically incurable, and acute epidemic cerebrospinal meningitis. It is an easy matter to do a lumbar puncture. The treatment of meningitis at present is practically limited to the cerebrospinal form, and we are more or less helpless in treating the other four forms.

*(To be continued)*

## NEW YORK NEUROLOGICAL SOCIETY

*Meeting held March 3, 1914*

The President, Dr. Smith Ely Jelliffe, in the Chair

### Paralysis Agitans: Motor Pathology

**Dr. Smith Ely Jelliffe**: I have serial sections from a case of paralysis agitans which illustrate the paucity of the fibers in the internal capsule, especially in that group of fibers derived from the development of the cerebello-rubrospinal system. This finding bears on the development of the present-day study of tremors and irregular motor reactions, such as are found in multiple sclerosis, Huntington's chorea, the lenticular degeneration of Wilson, and the group of analogous motor phenomena which have been studied for a number of years and were now regarded as due to disorder or defects in the extra-pyramidal tracts.

#### DISCUSSION

**Dr. I. Abrahamson**: Cases of tumor of the midbrain involving this region might show a tremor resembling that of paralysis agitans, but it is decidedly coarser and has greater amplitude—almost like a caricature of that of paralysis agitans.

**Dr. Charles L. Dana**: According to my experience with paralysis agitans, about 90 per cent. of the cases show the same method of development, they pursue the same course, have the same symptoms, and the prognosis is about the same. If this combination does not constitute a clinical type, then I am at a loss how to describe one.

**Dr. Smith Ely Jelliffe**: In the study of the heredity of Huntington's chorea, three distinct trends have been found, namely, the motor phenomena, the mental phenomena and the age factor. These trends might appear in different families, but when the three occur in the same individual, then a typical situation which might be termed Huntington's chorea is present. I regard paralysis agitans in much the same light; it represents a syndrome or combination of factors rather than a clinical entity.

### The Relief of States of High Vascular, Muscular and Mental Tension

**Dr. William J. M. A. Maloney** and **Dr. Victor E. Sorapure**: An emotional state is consequent on a physical state; the latter is the immediate source and precursor of the emotion. According to this theory fear develops because the heart quickens; the heart does not quicken because we fear; the tachycardia is the cause of the fear; the fear results from the tachycardia, and we feared because we breathed rapidly and regularly; we did not breathe rapidly and irregularly because we feared; the hurried, shallow, gasping respirations caused the fear; the fear resulted from the hurried, shallow, gasping respiration. Fear without visceral change cannot occur. Absence of visceral change implies absence of emotion. To minimize visceral change is to minimize emotion. Deep breathing slows the heart's action. The changing of hurried, shallow breathing into slow, deep breathing, and the reducing of the heart's rate mitigates or dispels fear. So long as the breathing is controlled and the heart slow, no considerable fear nor excitement can exist. Every emotion, every thought is externalized in muscular action.

I have elaborated for the relief of states of mental and muscular tension certain depressor exercises, which I use as an introduction to the treatment of ataxia by the blindfold method. In tabetics who were practicing these exercises I have observed a fall of blood-pressure, and the patients reported that at home the exercises often led to sleep. In a case of chronic nephritis the exercises led to a fall in the blood-pressure from 220 to 192 mm. in fifteen minutes. Altogether, over 300 observations have been made, and in more than 50 cases the effect of these exercises has been studied.

The exercises might be divided into two groups: breathing exercises and relaxation exercises. Breathing exercises: As we seldom use effort to expire, and often need effort to inspire, expiration is to a great extent a passive, mechanical act, whereas inspiration more often is performed consciously. So inspiration is usually better controlled than expiration, and much of the trouble in teaching breathing exercises is in training patients to govern their expiration. We first instruct the patient to breathe deeply and to pause at the end both of inspiration and of expiration. The breathing should be abdominal and should be done without jerking. One of the purposes of deep breathing is to distract the patient from obsessing thoughts and disturbing ideas; to focus his attention on the exercises. But deep breathing quickly tires *patients. Therefore, after about twelve full breaths, the* patient is allowed to pass to breathing of moderate amplitude. All imagery is discouraged. The patient is asked to feel only the passage of air through his nasal cavities and the tactile sensations which arise from the movements of the abdominal wall against his clothes. While he is so practicing, he is cautioned to keep his attention on the sensations which accompany his breathing. After a few minutes of "medium" breathing, the patient is taught to breathe quietly, and to attend only to the accompanying sensations. A bag of sand or shot or other heavy object placed on the abdomen is useful to increase the muscular effort involved in breathing, so that breathing, during the exercises, might not easily lapse into an unconscious act. Instead of the sand-bag, the physician's hand may be used.

Relaxation exercises: To relax the muscles, passive movements in which the muscles were alternately lengthened and shortened are employed. The scalp, forehead, cheek and jaw muscles of the recumbent patient are passively moved by the physician, and this is continued until wrinkling diminishes or disappears and muscular spasm is eliminated. Next, a shoulder is relaxed; then an arm. Each joint is moved passively until all trace of muscular tension vanishes. All movements should first be made passively by the physician, and then, where possible—limbs, head and trunk—passively induced by the action of gravity.

*The effects of breathing and relaxation exercises: Besides* the tranquilizing of excited and anxious states, and the general relaxation of the musculature, certain other physiologic effects result. During the exercises a high blood-pressure almost invariably falls. Not only in organic renal diseases, but also in cases of high blood-pressure in which no renal disease could be detected, a fall occurred. A reduction of from 25 to 30 mm. in the systolic blood-pressure, as a rule, results from the exercises, and even greater reductions occur. This fall in blood-pressure was observed not only in cases of high pressure, but also in normal people, among whom a fall of from 10 to 15 mm. was customary. The fall, as a rule, affected almost equally the systolic and the diastolic pressure in normal people, and sometimes there was an equal fall in the systolic and diastolic pressure in persons with organic disease, but in those in whom the blood-pressure was abnormally high, the systolic pressure usually fell to a greater degree than the diastolic.

Psychologically, the exercises produce concentration of attention and restriction of consciousness. The physiologic effects are relaxation of the voluntary muscles, diminution of muscular reflexes, slowing of the pulse rate, a tendency to reestablish in the pulse the normal rhythm in time and volume, lowering of blood-pressure, and a tendency to restore the normal pulse pressure. The exercises should last about twenty minutes at first. If they were continued longer, the patient grew restless.

Therapeutic applications: These exercises were originally devised as an aid to the reeducation of the ataxic tabetic. Obviously, they were applicable to all cases in which the relief of high vascular, muscular or mental tension was desired. They were therefore taught in cases of high blood-pressure, of muscular spasm, of insomnia and other neurasthenic symptoms.

### DISCUSSION

Dr. Walter Timme: I do not think the theory that the rapid heart action produced the fear is susceptible of proof, but rather the converse. For example, take a cat and give it sufficient atropin to diminish the auto-activity that has control over the heart's action, a sudden fright would fail to produce rapid heart action, but still the animal would be frightened. Fright may produce blanching of the skin and diarrhea, due to stimulation of the autonomic nerve ends. In other words, the results of two factors are interwoven, the two factors being the sympathetic and the autonomic systems. Referring to the blood-pressure, while in certain cases its reduction might prove beneficial, in other cases the high blood-pressure may be compensatory, and its reduction would prove injurious. With a productive inflam*mation of the kidney, a high blood-pressure is a purposeful* action, and by reducing it the kidney cannot functionate properly. With functional conditions, of course, the reduction of a high blood-pressure is beneficial, but to attempt to reduce it below its physiologic limits is of doubtful efficacy.

Dr. Richard B. Kruna: I have employed exercises similar to those described in the reeducation treatment of infantile paralysis for the past eight years, also in the treatment of cardiac neuroses, in conditions of disturbed innervation of muscular tissues, of increased muscular activity, such as we find in convulsive tics and in neurotic tachycardia, and I can subscribe to the fact that by this method we can establish greater regularity of the heart's action, and that in infantile paralysis *it improves the innervation of the muscles that* are affected by the paralysis springing from certain segments of the cord.

Dr. Smith Ely Jelliffe: I am glad to hear emphasized the value of the psychic element in connection with this method of treatment. I believe, however, that the authors will have to relinquish their contention that fear is consequent on the quickened heart's action. If anything has been shown by the recent work on the sympathetic nervous system, it is that the James-Lange theory failed fully to account for these phenomena, and that after all we are not afraid because our hearts beat, nor do our hearts beat because we are afraid, but that these phenomena are the result of interrelatory phe*nomena operating through the sympathetic and the auto-*nomic nervous system.

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# *Current Medical Literature*

## AMERICAN

Titles marked with an asterisk (*) are abstracted below.

### American Journal of Medical Sciences, Philadelphia

*April, CXLVII, No. 4, pp. 469-624*

1 *Cholecystitis without Stones or Jaundice in Its Relation to Chronic Pancreatitis. W. J. Mayo, Rochester, Minn.
2 *Treatment of Pylorospasm in Infancy. J. Ruhräh, Baltimore.
3 Tuberculosis of Spleen, Septic Infarction, Polycythemia, Splenectomy. J. Douglas and A. B. Eisenbrey, New York.
4 Giant Tumors of Conus and Cauda Equina. J. Collins and C. A. Elsberg, New York.
5 Cases of Hypotension Associated with Definite Symptomatology. E. H. Goodman, Philadelphia.
6 Significance of Diastolic and Pulse-Pressure. P. Nicholson, Ardmore.
7 Action of Certain Anilin Dyes on Bacterial Development. C. E. Simon, Baltimore, and M. A. Wood, Houston, Tex.
8 *Diagnostic Value of Percutaneous Tuberculin Test. E. B. Krumbhaar and J. H. Musser, Jr., Philadelphia.
9 *Successful Removal of Hemangio-Endothelioma from Dura of Frontal Region of Brain. T. Diller and R. T. Miller, Jr., *Pittsburgh.*
10 *Total Non-Protein Nitrogen of Blood in Pregnancy and Eclampsia. C. B. Farr and P. F. Williams, Philadelphia.
11 Prolapse of Ovary; Its Rational Management. C. D. Palmer, *Cincinnati.*
12 Precocious Development of External Genitals Due to Hypernephroma of Adrenal Cortex. H. D. Jump, H. Beates, Jr., and W. W. Babcock, Philadelphia.
13 Symptoms Suggesting Pituitary Disorder. E. D. Bond, Hathorn, Mass.
14 Value of Auto-Inoculation in Pulmonary Tuberculosis. H. L. Barnes, Wallum Lake, R. I.
15 Early Symptomatology of Cancer of Esophagus. H. H. Janeway, New York.

1. **Cholecystitis without Stones or Jaundice.**—In this paper Mayo endeavors to show that in the presence of chronic pancreatitis without jaundice and without evidence of back pressure on the biliary tract the gall-bladder should be removed if it shows marked evidences of chronic cholecystitis, especially the strawberry type. In at least a half-dozen cases

operated on in the Mayo clinic the following sequence has occurred: cholecystostomy had been done for chronic cholecystitis without stones and with a complicating chronic pancreatitis. The patient was relieved for some weeks or months and then the symptoms returned. Recognizing the need of more prolonged drainage the gall-bladder was reopened and drained for a considerable period. There was complete relief so long as drainage of the gall-bladder continued, but sooner or later, after the fistula in the gall-bladder healed, the symptoms returned. It has been Mayo's experience that removal of the gall-bladder promptly relieves the symptoms and permanently cures the patient.

Chronic pancreatitis, the result of gall-stone disease, is usually cured by the removal of the stones and drainage of the biliary tract and in the chronic infections of the gall-bladder with secondary involvement of the pancreas, in the absence of interference with biliary drainage, cholecystectomy furnishes a satisfactory symptomatic cure.

2. **Treatment of Pylorospasm in Infancy.**—The points to which Ruhräh particularly calls attention are: 1. A more careful diagnosis. 2. A longer trial at medical treatment, especially in all cases in which the diagnosis of pylorospasm is probable. 3. The necessity of the use of breast milk. 4. The superiority of atropin to other forms of medication.

8. **Percutaneous Tuberculin Test.**—In 76 unselected nontuberculous cases tested by Krumbhaar and Musser only 5 failed to give a negative reaction, and in only 2 of these was the Moro positive. Of 24 cases in the first two grades of pulmonary tuberculosis all reacted positively, indicating as is generally accepted, the specificity of the reaction. Of 10 cases of far-advanced pulmonary tuberculosis, 9 reacted negatively and 1 doubtfully positively. Of 10 tuberculous cases other than pulmonary all reacted positively. Of 28 clinically doubtful cases, by the Moro test 7 reacted positively, 6 doubtfully and 15 negatively. In the 16 cases in which von Pirquet tests were also made, 9 negative Moro cases gave 7 positive and 2 doubtful von Pirquets, while 1 doubtful Moro gave a positive von Pirquet. The others tallied with the Moro test.

In the light of these figures reinforced by the opinions of others, Krumbhaar and Musser believe to be erroneous the prevalent opinion that positive reactions in adults are of little or no value. The constantly positive reaction in all undoubted early and moderate cases of tuberculosis is a strong indication of the specificity of the reaction. The negative reaction in 90 per cent. of the far-advanced cases indicates that after bodily resistance has been overcome, with the probable disappearance of antibodies, the tissues fail to react to the test. As well as in pulmonary tuberculosis the test is of value in the differential diagnosis of pleural effusions, joint diseases, abdominal tuberculosis versus typhoid, etc. A general anaphylactic reaction, according to Chiaravallotti, as shown by an increase in the number of leukocytes in the peripheral blood following application of the test, is not demonstrable. The test may be repeated on the same patient without alteration of the results. Although in this series the results were in every case the same, rare instances have occurred where repetition produced a different result.

9. **Tumor of Frontal Region of Brain.**—This case Diller and Miller say was interesting from several points of view. Here was a growth of fair size which produced none of the well-known symptoms of brain tumor, but which manifested itself chiefly by Jacksonian epilepsy involving the left arm and by a slowly progressive hemiplegia. This tumor, situated just anterior to the right motor cortex and lying between the falx and frontal lobe would naturally be expected to produce symptoms referable to the trunk and leg rather than the arm. Yet from the onset there appeared to have been convulsions of the muscles of the upper abdominal wall accompanying those of the arm while the leg itself was never involved in convulsions.

The authors were somewhat led astray in supposing the lesion chiefly located in the arm center. The movements in the epigastric region they found difficult to interpret, since they occurred with only two or three of the arm convulsions; moreover, they had the patient's history that similar attacks had occurred over a period of many years running back to childhood. They were, therefore, disposed to eliminate these attacks from consideration as evidence pointing to localization of the lesion. Even now it is difficult to interpret them. If one considers these early epigastric convulsions indicative of a lesion in the frontal cortex involving the adjacent center for the trunk, there is great difficulty in explaining the long history, the disappearance of these convulsions for several years and their subsequent reappearance with the onset of trouble in the left arm. The patient also described these epigastric movements as definitely limited to that region of the body and it was felt that this manifestation, whatever it indicated, was probably not related to the arm convulsions and hemiplegia.

This case also illustrates the practical point that a tumor may declare itself in an irregular and unusual manner. Besides the absence of general symptoms of brain tumor, the Babinski toe reflex and ankle-clonus, which one might expect to find, were both absent in this case. The knee-jerk, however, was distinctly increased as compared with its fellow, and was a diagnostic sign of considerable value.

10. **Nitrogen of Blood in Pregnancy.**—Farr and Williams found by testing that in normal pregnant women the total non-protein nitrogen does not usually exceed 30 mg. per 100 c.c. of whole blood. In general hospital cases without demonstrable renal lesions it may frequently reach 40 mg. or more. Slighter disturbances of function are therefore more clearly defined in the former class. In all cases of pregnancy in which there was definite renal insufficiency or eclampsia, with one exception, there was always a slight and in most cases a considerable increase in the total non-protein nitrogen. The degree of retention was similar to that found in parenchymatous nephritis rather than the higher grade common in the interstitial variety. It bore no definite relation to the severity of the symptoms. In only one case did the figures reach a height which, according to Strauss, would suggest a dubious prognosis. This patient died; another, with much less retention, also died.

The relatively normal elimination of phthalein in some cases of eclampsia and the markedly lowered excretion in some clinically normal cases deter the author from drawing conclusions as to its real diagnostic or prognostic value. The presence of a rising blood-pressure, the condition of the urine as regards albumin and casts, and the clinical picture the authors believe are severally more important than either of the newer methods they have employed. Further experience may modify this view, for Widal considers the examination of the blood of greater prognostic, if not diagnostic value, than the examination of the urine.

### American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

*April, LXIX, No. 4, pp. 581-752*

16 Rôle of Abdominal Cesarean Section in Treatment of Eclampsia. R. Peterson, Ann Arbor, Mich.
17 *Serum Diagnosis of Pregnancy by Dialysation Method. C. F. Jellinghaus and J. R. Losee, New York.
18 Needlessness of Combined General and Local Anesthesia. B. C. Hirst, Philadelphia.
19 *Aqueous Solutions of Iodin in Treatment of Gonorrhea in Women. H. J. Hartz, Philadelphia.
20 America's Contribution to Gynecology. E. T. Abrams, Dollar Bay, Mich.
21 Mechanism of Labor from Standpoint of Comparative Anatomy. E. A. Schumann, Philadelphia.
22 Well Authenticated Case of Sarcoma of Placenta. W. H. Cary, Brooklyn.
23 Case of Monstra Per Defectum. G. R. Smith, Mount Vernon, Wash.

17. **Serum Diagnosis of Pregnancy.**—Jellinghaus and Losee do not recommend the dialysation method for diagnostic purposes. It is entirely a laboratory procedure, the many sources of error make it absolutely unsuited for an office test, although the little box containing the reagents, etc., put up by a well-known drug firm would lead one to believe that it is. The box contains two dialysers, powdered placental albumen, etc. The powdered albumen is absolutely useless, as the authors have convinced themselves by personal trial.

They state that it seems a pity that such an outfit should be put on the market, for it will make many believe that the test is easy. If the outfit is generally used the literature will soon be crowded with positive and negative results equally devoid of value.

19. **Iodin Treatment of Gonorrhea in Women.**—In gonococcal infections of the lower genital tract, Hartz says iodin is a valuable agent in the treatment. It offers a more rapid, more thorough, and a more permanent improvement in the patient's condition than most other methods commonly in use. Gonococci disappear early from the secretions; intrapelvic extension is far less frequent; the use of the cautery and strong caustics is obviated and hence less scarring results. The constitutional condition of the patient improves as a result of the early cessation of the profuse discharge. The rapid improvement and lack of pain noticed by the patient encourages her to continue with the treatment. The entire course of treatment is of comparatively short duration, and but little burdensome to the patient and physician, and lends itself readily both to dispensary and private practice.

Of twenty-five cases that comprise Hartz' series, eighteen patients were cured, after treatment from four to ten weeks. Two of the remaining seven cases were markedly improved but still showed a few gonococci in the discharges from the cervix, the source of which, in all probabilities was reinfection from the husband, who also had gonorrhea, or possibly from the Fallopian tubes with patulous uterine orifices discharging the contents into the uterine cavity and hence through the cervix, or from the deep cervical glands beyond the reach of local medication. Of two patients who complained of intrapelvic symptoms, prior to the commencement of treatment, both were subsequently operated on for chronic salpingo-oophoritis, though the local condition of the lower genital tract had cleared up. The other three cases that showed improvement were under treatment from four to five weeks but drifted away from view and treatment was discontinued. One patient developed symptoms of intrapelvic involvement shortly after applications were begun, but with expectant treatment and rest in bed, her condition soon improved. Three of the eighteen patients that were cured had abscesses of Bartholin's gland which required incision and drainage.

The dilatation of the urethra by means of Hegar's dilators with light massage of the follicles over the dilator and with subsequent instillation into the uretha of the following solution: iodin (crystals), gr. v; albolene, oz. i, greatly enhanced the restoration of the parts to normal. The solution was retained in the canal from three to five minutes. The dilator if covered with Finger's ointment is also of value in these cases. Under the above outlined treatment the thick and copious yellow discharge soon disappears and is replaced by a thin whitish watery secretion in which gonococci are absent. A solution of zinc sulphate and alum one teaspoonful of each to two quarts of water used as a douche twice daily helps to limit the latter discharge.

### American Journal of Orthopedic Surgery, Philadelphia

*January, XI, No. 3, pp. 367-540*

24 Treatment of Tubercular Coxitis. R. Werndorff, Vienna.
25 Osteomyelitis at Sacroiliac Joint with Gas-Bacillus Infection. S. M. Cone, Baltimore.
26 Use of Celluloid Foot Plates. E. S. Geist, Minneapolis.
27 Recumbency in Treatment of Pott's Disease. G. B. Packard, Denver.

28 Pathology of Tabetic Arthropathy. L. W. Ely, Denver.
29 Cervical Rib. Report of Thirty-One Cases. M. S. Henderson, Rochester, Minn.
30 Joint Syphilis. A. O'Reilly, St. Louis.

### American Journal of Public Health, Boston

*March, IV, No. 3, pp. 179-288*

31 Occupational Diseases and Legislative Remedies. J. B. Andrews, New York.
32 Relationship of House-Fly to Disease. D. B. Armstrong, New York.
33 Midwives in America. C. C. Van Blarcom, New York.
34 Meaning of "Faith Cures" and Other Extra Professional "Cures" in Search for Mental Health. W. A. White, Washington, D. C.
35 Prevention of Carriers. W. A. Sawyer, Berkeley, Cal.

### Archives of Pediatrics, New York

*March, XXXI, No. 3, pp. 161-240*

36 Infants' Milk Stations: Their Relation to Pediatric Clinics and to Private Physician. S. J. Baker, New York.
37 *Experiment in Collection of Human Milk for Hospital and Dispensary Uses. B. R. Hoobler, New York.
38 *Simple Method of Preparing Albumin Milk. B. R. Hoobler, New York.
39 Observations on Milk-Station Infants. M. S. Reuben, New York.
40 *Study of Child in Tuberculous Milieu. M. Fishberg, New York.

37. **Experiment in Collection of Human Milk.**—The experiment on which Hoobler reports was planned and carried out to answer the following questions: 1. Will mothers sell their surplus milk? 2. Can such milk be purchased without injury to the infant on the breast? 3. What price would have to be paid for the milk in order to secure it? 4. How much extra machinery would have to be set in motion in order to collect it? The results are summed up as follows: 1. Mothers are perfectly willing to sell their milk. 2. Certain mothers can spare a portion of their milk without detriment to their own child. 3. Human milk can be purchased at a reasonable price. 4. Its collection can be accomplished without additional machinery than may be found in connection with any well organized Social Service Department. 5. If needy mothers are chosen to furnish the milk a double charity is performed, viz., a struggling mother is helped to support herself and child, and sick babies are furnished with the best food known.

38. **Simple Method of Preparing Albumin Milk.** — The method described by Hoobler is as follows: Take 1 pint of fat-free buttermilk and add to it 1 pint of warm water, to which has been added 10 grams of powdered casein. This will make 1 quart of fat-free albumin milk. If it is desired to have an albumin milk containing more fat, instead of using fat-free buttermilk use artificial buttermilk made from whole milk. After the casein suspension has been added the milk can be bottled and put on ice until ready to use. The thick smooth buttermilk will hold the finely divided particles of casein in a very even suspension, and allow same to pass through the nipple without blocking, and will stand for sometime without settling to the bottom of the bottle. The formula of the albumin milk made from the fat-free buttermilk is: Protein, 2.8 per cent.; fat, 0.25 per cent.; carbohydrate, 2 per cent. The formula of the albumin milk made from the whole milk buttermilk is: Protein, 2.8 per cent.; fat, 1.75 per cent.; carbohydrate, 2 per cent.

Metabolism studies have been made on children fed on this modified albumin milk, and the absorption and retention of nitrogen was in practically the same proportions as when fed on the original albumin milk. This casein flour costs 40 cents per pound, and is sufficient to make 44 quarts of albumin milk. To make the same amount from moist casein curd would require the use of 22 quarts of milk. It would seem from the foregoing that albumin milk made from casein flour accomplishes in every particular the things expected of the albumin milk made up from fresh casein curd.

40. **Study of Child in Tuberculous Milieu.**—The children in 217 families, in which either the father or mother, or both, were found tuberculous, were investigated by Fishberg. They were found living under conditions greatly favoring the dissemination of the disease. Of 274 consumptives found among these people, only 112 slept in a separate room, and 136 slept in beds by themselves; the rest shared their rooms, or beds or both, with other persons. Inasmuch as these children were burdened by both a deleterious environment and a tainted heredity, they offered splendid material for the study of the effects of the tuberculous milieu on children.

Of the 1,129 persons comprised in this group of families, 792 were under 15 years of age. Nearly all of these children were reared on breast milk, only 5.5 per cent. having been brought up on artificial feeding. The proportion reacting to tuberculin was not found to have been influenced by the manner of feeding during infancy. Some mothers suffering from active tuberculosis were found suckling their infants, and the latter apparently thrived as well as others of their class: many, however, infected them with active tuberculosis. The weight of the infants was fairly normal, but the children over 4 years of age were deplorably short of weight when compared with others of their class. During the six months they were kept under observation, one-half remained stationary in weight, 40 per cent. had lost and 10 per cent. had gained in weight. In 8 per cent. of the children enlarged superficial thoracic veins were found. In children in whom a diagnosis of tuberculosis was made, 37.5 per cent. showed these enlarged veins and three-fourths were unilateral. Of the children showing signs of latent tuberculosis, 25 per cent. had enlarged thoracic veins.

The cervical glands were swollen in 67.8 per cent. of the children; swollen glands in the axilla, groin, etc., were exceedingly rare. Only one child was found with enlarged supraclavicular glands, and it had other symptoms and signs of tuberculosis. Hyperplastic conditions of the nose, throat and pharynx, such as enlarged tonsils, adenoids, chronic rhinitis, etc., were found in 58.6 per cent. of the children. Scrofula was rather infrequent. The external stigmata of tuberculosis, such as scrofuloderma, tuberculides, phylctenula, glandular blepharitis and conjunctivitis, keratitis, etc., were exceedingly rare among these children.

The cutaneous tuberculin test, applied twice and three times to those who reacted negative to the first application, was found positive in 7 per cent. of infants between 1 and 6 months of age. Between 6 months and 1 year of age 21 per cent. of the infants reacted positively. The percentage of positive reactions keeps on increasing with advancing age, and at fourteen years 83.79 per cent. were found infected with tuberculosis. Among the 692 children, 65 were found to be suffering from active tuberculosis. Of these 13 had tuberculosis of the bones and joints, 4 Pott's disease, 2 spina ventosa, and one tuberculosis of the glands. With active pulmonary tuberculosis, 19 children were found, and 25 with tracheobronchial adenitis. The mortality of children under 14 among these families was rather high. Of 188 children under 6 who died, 30 succumbed to meningitis, i. e., 16 per cent., of all the deaths of children under 6 years of age were due to meningitis, which is enormous when compared with the 2 per cent. of deaths due to this cause among the general population. While only 17, or 7.3 per cent., of all the deaths were said by the mothers to have been due to pulmonary tuberculosis, it must be borne in mind that in 79 cases the parents stated that the deaths were due to unknown causes.

### Boston Medical and Surgical Journal

*April 16, CLXX, No. 16, pp. 601-636*

41 *Problems in Nephritis. H. D. Arnold, Boston.
42 Importance of Diagnosis and Treatment of Primary Syphilis. C. M. Smith, Boston.
43 Case of Bone Cyst of Os Calcis. W. P. Coues, Boston.

41. **Problems in Nephritis.**—Cases of nephritis Arnold claims do better on a low protein diet, which requires less functional activity on the part of the kidneys. The degree to which the protein should be cut down depends on the degree of impairment of the renal functions. A rough estimate can be made on the basis of allowing 90 grams of protein in the lightest cases and about 40 grams in the severe or advanced cases. Intermediate grades should have an amount of protein between these extremes, varying according to the severity of the disease. If the symptoms improve and the blood-pressure falls, the functional tests are not essential; otherwise valuable information may be obtained from them, even in the present stage of our knowledge. With the accumulation of more data, the inferences that may be drawn from these functional tests will be more and more valuable. In cases with edema, and also in the cases in which the blood-pressure remains high although the protein in the food is reduced, the amount of salt should be reduced.

As a result of further study Arnold is convinced that we shall undoubtedly divide cases of chronic interstitial nephritis into at least two or three clinical types. A better understanding of these cases and a more careful study of the problems of nephritis will lead to more intelligent treatment and resulting benefit to the patient. A proper regulation of the diet—not forgetting to provide a sufficient amount of nutrition—will, he says, enable many of these patients to live in comfort for years longer than we have been taught to expect.

### Bulletin of Johns Hopkins Hospital, Baltimore

*April, XXV, No. 278, pp. 101-132*

44 *Clinical Method of Studying Titratable Alkalinity of Blood and Its Application to Acidosis. A. W. Sellards, Baltimore.
45 Errors in Diagnosis of Pulmonary Tuberculosis. L. Brown, Saranac Lake, N. Y.
46 *Protective Enzymes of Body (Abderhalden). E. G. Grey, Boston.
47 Principal Types of Microorganisms in Baltimore Milk. L. P. Shippen, Baltimore.
48 Bacteriologic Findings in Baltimore Oysters. M. Joseph, Baltimore.

44. **Titratable Alkalinity of Blood and Its Application to Acidosis.**—Changes in the titratable alkalinity of the blood were found by Sellards to occur which give rise to distinct qualitative differences in the reaction of normal and pathologic sera to phenolphthalein. Conditions are readily obtained under which the blood serum, during an acidosis, is neutral or acid, whereas under the same conditions all normal sera are strongly alkaline. The less severe grades of diminished alkalinity can be detected in a qualitative way from the behavior of sera before and after the removal of protein and by the selection of a solvent, such as alcohol, in which the ionization and hydrolysis of carbonates are diminished. The effect of protein and of the solvent on the reaction permit a variety of combinations of these factors for detecting varying grades of diminished alkalinity.

Definite changes in the titratable alkalinity occur in experimental and spontaneous acidosis, in certain nephropathies, and in some anemias. The method also affords information of value in the differentiation of certain obscure comas. Cases of diabetes occur in which the excretion of ammonia and of acetone and related bodies is normal, but the titratable alkalinity is decreased and the tolerance to bases is increased. This affords proof of a definite impoverishment in bases in these cases. Changes in the titratable alkalinity are accompanied by corresponding changes in the tolerance of the body to fixed bases. The titratable alkalinity is of important biologic significance, while the available evidence indicates that the physico-chemical reaction of the blood is maintained at a fairly constant value, even in outspoken grades of acidosis.

The parallelism between the diminution in titratable alkalinity and the increase in tolerance to fixed bases in diabetes and in the nephropathies affords crucial evidence that this increase in tolerance is due practically altogether to a deficit of the body in alkalies or alkali-yielding substances. The questions as to whether such a condition constitutes an acidosis will be discussed in a subsequent paper.

46. **Protective Enzymes of Body (Abderhalden).**—In transplanting epithelial organs Grey says it is necessary to remember that such a procedure stimulates the formation of antiferments in the host; and, in the case of glands, it is important to avoid any preliminary intravenous or subcutaneous feeding—perhaps oral also—of the substance, since such administrations encourage the development of protective enzymes on the part of the host. The results of Grey's work agree with the conclusions of those investigators who have found that the Abderhalden ferments are specific.

### Bulletin of Medical and Chirurgical Faculty of Maryland, Baltimore

*April, VI, No. 10, pp. 155-176*

49 Medical Ethics and Publicity. R. W. Johnson, Baltimore.
50 Relation of Public to Profession. C. J. Bonaparte, Baltimore.
51 Relation of Press to Physician and People. T. J. C. Williams, Baltimore.

### Canadian Medical Association Journal, Toronto

*April, IV, No. 4, pp. 277-372*

52 Suprapubic Prostatectomy. A. McLean, Detroit.
53 *Present Position of Venesection. R. D. Rudolf, Toronto.
54 *Gastro-Enterostomy: Experimental and Clinical. F. A. C. Scrimger, E. W. Archibald and A. H. Pirie, Montreal.

53. **Present Position of Venesection.**—In many cases Rudolf says venesection is the most powerful method of treatment at our command, and, if used with great discretion, seems to be free from any bad effects. It is often indicated

in heart failure, acute or chronic, with marked cyanosis; acute toxemias, such as acute uremia; acute infections, such as typhoid and pneumonia; chronic toxemias, especially those with high blood-pressure. It may occasionally be used in cases in which one wishes to increase the coagulability of the blood, as in deep hemorrhages, and in aneurysm. Rudolf uses a method which consists in puncturing the vein through the skin with a sharp needle 2 mm. in diameter. The blood flows freely through this and if a piece of tubing, previously filled with water be attached to the needle and this be led into a vessel, then as much negative pressure may be used as desired and thus the chances of clotting in the needle are lessened.

54. **Gastro-Enterostomy: Experimental and Clinical.**—Placing of the stoma in the pyloric portion the authors claim as being the rational procedure. Here food will pass out by the stoma chiefly, though partly also by the pylorus if open. If an ulcer is present, it can be efficiently protected by excluding the pylorus. In both cases the animals do well. If an ulcer is found proximal to the pylorus anywhere in the pyloric portion, it can still be protected by laying a fascial ligature around the stomach between it and the anastomosis; further, in animals at least, an anastomosis placed in relatively the same position as that necessarily used in the human, if a short-loop operation is done, is much more efficient when the fascial ligature is applied immediately distal to the stoma, than when placed at the pylorus. The anastomosis in the cardiac portion, with the pylorus open, will, as has been observed by others, allow most of the food to go by the pylorus. It will afford no protection to an ulcer in that situation. More than this, in dogs at least, most of the food leaving by the pylorus reenters the stomach through the anastomosis, and the animals will not do well; they vomit and grow thin. The addition of the exclusion of the pylorus will protect an ulcer, but will not greatly improve things otherwise. The stomach will still fail to empty. The animals will vomit and grow thin.

What is the reason for the inefficiency of the stoma placed in the cardiac portion and its efficiency when in the pyloric portion? The answer according to the authors is to be found in the observations of intragastric pressure made by v. Pfungen, Kelling, Cannon and others. They proved that the pressure in the cardiac portion during digestion was low, but strikingly constant, variously estimated at from 6 to 16 cm. of water, while in the pyloric portion it is intermittently high, estimated at from 60 to 120 cm. of water, during active peristalsis. The cardiac portion is practically without peristaltic activity; its function is to maintain by tonic contractions a constant low pressure. The pyloric is strongly peristaltic, its muscle rhythmically develops relatively great power. The low pressure in the cardiac portion is insufficient to force out of the stoma so long, at least, as there is an easier path into the pyloric antrum. The high pressure in the pyloric end will force the food rapidly through any opening that is available.

### Illinois Medical Journal, Chicago

*April, XXV, No. 4, pp. 213-284*

55 Cesarean Section, Report of *Fourteen Cases from* Services *of* Drs. Parkes and Danforth. W. C. Danforth, Evanston.
56 Injury to Pelvic Outlet Following Labor, or Any Other Cause. Should Immediate Repair Be Made? H. E. Sauer, Chicago.
57 *Device for Treatment of Prostatitis. C. M. McKenna, Chicago.
58 Carcinoma of Breast, Treated with Injections of Quinin Bisulphate and Roentgen Rays. M. Reichmann, Chicago.
59 Are Criminals Insane Individuals? C. H. Anderson, Menard.
60 Constitutional Immorality. P. E. Bowers, Michigan City, Ind.
61 Data Gathered in Study of Two Hundred and Sixty-Nine Murderers. R. Sleyster, Waupau, Wis.
62 Ways and Means of Preventing Physical, Mental and Moral Degeneracy. G. H. Hill, Des Moines, Iowa.
63 Deterioration *in Dementia* Praecox. C. Rickher, Kankakee.
64 Wassermann Reaction in Dementia Praecox. M. A. Bahr, Indianapolis.
65 Modern Conceptions of *Paranoiac State.* C. F. Read, *Chicago.*

57. **Device for Treatment of Prostatitis.**—The device which McKenna describes is a glass suction tube that fits into the rectum in such a way that hyperemia of the prostate and its surrounding tissue may actually be produced.

### Journal of Abnormal Psychology, Boston

*March, VIII, No. 6, pp. 361-428*

66 Productions in Manic-Like State Illustrating Freudian Mechanisms. J. T. Maccurdy, Ward's Island, N. Y.
67 Slips of Tongue and Pen. C. P. Oberndorf, New York.
68 Three Examples of Name-Forgetting. H. W. Frink, New York.
69 Inventorial Record Forms of Use in Analysis of Dreams. L. H. Horton, Boston.
70 Freudian Psychology and Psychic Research. L. T. Troland.

### Journal of Nervous and Mental Disease, Lancaster, Pa.

*April, XL, No. 4, pp. 209-272*

71 Case of Amyotonia Congenita. C. C. Beling, Newark, N. J.
72 Nature and Cutaneous Sensation, with an Instrument for Its Measurement. W. Timme, New York.

### Lancet-Clinic, Cincinnati

*April 11, CXI, No. 15, pp. 427-460*

73 Serum Treatment of Puerperal Sepsis: Report of Three Cases. H. L. Woodward, Cincinnati.
74 *Camphor in Pneumonia. O. J. Seibert, Cincinnati.
75 General Cutaneous Emphysema in Whooping-Cough. C. A. Stammel, Jr., Cincinnati.
76 Diagnosis and Treatment of Tic Douloureux. V. P. Blair, St. Louis.

74. **Camphor in Pneumonia.**—The method used by Seibert is very simple and painless. After sterilizing the skin with tincture of iodin and cocainizing the subcutaneous tissue with a 2 per cent. solution of cocaine, with either a Luer or a Record syringe, he injects 10 cc. to the 100-weight of a 30 per cent. camphorated sesame solution and repeats this every eight or twelve hours, according to the severity of the infection. The best location for the injections is the outer side of the thigh, beginning high up and alternating thighs. As in any other bacterial infection, the earlier the treatment is begun the better and quicker the results.

### Medical Record, New York

*April 18, LXXXV, No. 16, pp. 691-736*

77 Syphilis in Relation to Life Insurance. H. H. Schroeder, New York.
78 Present Status of Typhoid Immunization in Hospitals and Training Schools of New York. A. Meyer, New York.
79 Case of Facial Hemiatrophy. M. Neustaedter, New York.
80 Visualization of Upper Intestinal Tract, by Means of Roentgen Rays in Conjunction with Use of Improved Duodenal Tube. L. O. Palefski, New York.
81 Isoserum Treatment of Incoercible Vomiting of Pregnancy. C. K. Austin, Paris.
82 Cancer Statistics. A. L. Benedict, Buffalo.
83 Epidemic Icterus. A. Strauch, Chicago.

### Michigan State Medical Society Journal, Grand Rapids

*April, XIII, No. 4, pp. 211-285*

84 Present Status of Surgery of Systemic Goiter. W. S. Bainbridge, New York.
85 Etiology and Pathology of Lobar Pneumonia. B. M. Edlavitch, Fort Wayne, Ind.
86 Symptomatology and Diagnosis of Pneumonia. H. B. Schmidt, Ann Arbor.
87 Albumin Content of Sputum: Its Value in Diagnosis and Prognosis of Tuberculosis. M. L. Holm and E. R. Chambers, Lansing.
88 *Experiments to Test the Toxicity of Mother's Milk after Administration of Acetanilid. B. A. Stevenson, Detroit.
89 Pelvic Infections. G. V. A. Brown, Detroit.
90 Syphilis of Nervous System. T. Klingmann, Ann Arbor.
91 Retrospect. E. T. Abrams, Dollar Bay.
92 Tonsillitis. J. J. Reycraft, Petoskey.
93 Elephantiasis. Case Report. H. C. Rockwell, Diamondale.

88. **Acetanilid in Mother's Milk**—To ascertain whether acetanilid does appear in the milk of a nursing mother and if so, whether in sufficient quantity to cause the death of an infant, tests were made by Stevenson. The babies were put on artificial food and the drugs were administered to the mothers and specimens obtained. In one set of experiments the reaction of the urines to the reagents was in each case definitely positive or negative, but the reaction of the milk specimens was not so satisfactory. The specimens from one patient were not uniform in color when first taken and there was considerable confusion after the addition of the reagents owing to the many shades and tints that were exhibited. It was decided that this might be due to the presence of the casein, so in the next set of experiments hydrochloric acid was added to each specimen and it was then boiled and filtered. With the comparatively clear filtrate thus obtained it was possible to be very positive about the reaction.

In this set of experiments the milk and all the urine secreted for thirty consecutive hours was obtained for the tests. The precipitation of the casein obviated the confusion in the color reactions. In the twenty-four specimens of milk and twenty specimens of urine examined there was a very faint reaction in but three specimens, these reactions occurring in thirty hours after the first and fifteen hours after the second dose. The babies began nursing as soon as the experiments were concluded and none of them showed any ill effects. From these experiments it would seem that acetanilid derivatives are at times eliminated but that more frequently there is no trace of them. The quantity found in each case was so minute that it could only be detected by holding the specimen against a white background. The time of the first appearance of the reaction after the administration of a dose of 4 grains varied from seven to fifteen hours.

### Modern Hospital, St. Louis

*April, II, No. 4, pp. 203-266*

94 New Montefiore Home for Chronic Invalids. S. Wachsmann, New York.
95 Functions of Modern Hospital. R. O. Beard, Minneapolis.
96 Standardization of Hospital Plumbing Fixtures. W. B. Stratton, Detroit.
97 Organization of Housekeeping Department. H. Crawford, Baltimore.
98 Student Government in Industrial School. A. M. Clay, Chillicothe.
99 Mechanic Ventilation of Hospitals. T. J. Van der Bent, New York.
100 Cobb Building of Seattle for Physicians and Surgeons. A. H. Albertson, Seattle.
101 Organization and Management of Housekeeping Department. E. A. Greener, Muskegon, Mich.
102 Small Hospital of Low Cost. V. A. Matteson, Chicago.
103 Hospital Aid for Handicapped. B. Hollings, Cambridge, Mass.

### New York State Journal of Medicine

*April, XIV, No. 4, pp. 175-228*

104 Relation of Ileocecal Valve to "Lane's Kink." W. F. Campbell, Brooklyn.
105 Treatment of Typhoid. W. S. Gleason, Newburgh.
106 Recognition of Early Heart-Insufficiency. A. T. Lytle, Buffalo.
107 Management of High Blood-Pressure. F. C. Rice, Ripley.
108 Blood-Pressure in Pulmonary Tuberculosis. L. Shalet, New York.
109 Hematuria: Its Pathologic and Diagnostic Import. L. F. Schiff, Plattsburgh.
110 Treatment of Fibroids by Deep Roentgenotherapy. J. J. Levy, Syracuse.
111 Pathology and Treatment of Chronic Gonorrheal Urethritis in Male. J. D. Olin, Watertown.
112 Recent Advances in Neurology and Psychiatry. E. L. Hanes, Rochester.
113 Burden of Mental Defect. H. G. Matzinger, Buffalo.
114 Relation of General Practitioner to Public Health. A. MacFarlane, Albany.
115 Surgical Treatment of Cholecystitis. M. O'Meara, Kingston.
116 Lichen Implanus. W. B. Cunningham, New York.
117 Prevention of Tuberculosis by Medical Inspection of Schools. M. E. Lapham, Highlands, N. C.
118 *Case of Sciatica, Treated with an Autogenous Vaccine. H. Greeley, Brooklyn.
119 Publicity in Lay Press by Members of Society. F. E. Sondern, New York.

118. **Sciatica Treated with Autogenous Vaccine.**—Greeley made a vaccine from a throat coccus, and at once gave the patient a dose of 100 million, killed by one hour at 60 C. The patient developed no reaction of any kind (not even at puncture). His temperature continued normal or a little below, and at the end of a week Greeley doubled the dose. This increased the pain, which had remained about constant, and developed 0.5 F. temperature elevation which disappeared within twenty-four hours. Three days later he was up and about, greatly improved, and at the end of the week was given the third dose, 400 million. This reacted about as the preceding, but when he returned again, seven days later, all pain had disappeared, and a final precautionary dose of double the last was given without any following reaction, and the patient has been without the least symptom of the malady for the past five months.

### Northwest Medicine, Seattle, Wash.

*April, VI, No. 4, pp. 91-120*

120 Insane in Washington Territory. T. W. Prosch, Seattle.
121 Some Phases of Chronic Membranous Pericolitis. N. W. Jones, Portland, Ore.
122 Perforating Duodenal Ulcer with Reference to Pain in Left Shoulder as Symptom. A. A. Matthews, Spokane.
123 Recent Observations in Nephritis. G. G. Richards, Salt Lake City.
124 Blood Pressure in General Practice. R. W. Stearns, Medford, Ore.
125 Surgical Problems of Country Physician. G. W. States, Preston, Idaho
126 Cancer Control Precancerous Lesions. J. C. Bloodgood, Baltimore.
127 Relation of Roentgenologic Specialist to Medical Profession. E. F. Tucker, Portland, Ore.

### Southern Medical Journal, Nashville

*April, VII, No. 4, pp. 261-344*

128 *Pathology of Heart in Rheumatic Infection in Children. W. W. Harper, Selma, Ala.
129 Symptoms of Rheumatism in Childhood. H. P. Dawson, Montgomery, Ala.
130 Mumps. J. S. Turberville, Century, Fla.
131 Cocain as Respiratory Stimulant. G. E. Pettey, Memphis.
132 Report of New York Commission on Milk Standards. W. A. Evans, Chicago.
133 Dairy Inspection in Cincinnati. J. H. Landis, Cincinnati.
134 Sanitary Milk Surveys in Kentucky—Some Facts, Methods and Results. R. M. Allen, Lexington, Ky.
135 Ununited Fractures. D. Eve, Nashville.
136 Indigestion as Seen by Surgeon, with Illustrative Case Histories. W. B. Thorning, Houston, Tex.
137 Growths and Syndromes of Thyroid Requiring Operation. W. D. Haggard, Nashville.
138 Case of Priapism Relieved by Intravenous Injections of Salvarsan. C. W. Shropshire and C. J. Watterston, Birmingham, Ala.
139 *Surgical Treatment of Anuria. G. R. Livermore, Memphis.
140 Case of Anorectal Imperforation with Autopsy Findings. H. P. Cole, Mobile, Ala.
141 Foreign Body in Sphenoid Cavity. R. B. Nelson, Memphis.
142 Treatment of High-Pressure Disease. S. R. Roberts, Atlanta, Ga.
143 Accommodation in Eyes of Persons Above Forty Years of Age. D. S. Reynolds, Louisville, Ky.

128. Abstracted in THE JOURNAL, Dec. 20, p. 2269.

139. **Surgical Treatment of Anuria.**—In Livermore's method the kidneys are exposed, delivered and stripped of their capsules, a ½-inch incision is then made in the cortex of each kidney, in the center of its convex border and continued into the pelvis. A strip of gauze ½-inch wide is saturated with a 10 per cent. ichthyol in glycerin solution, grasped with dressing forceps and carried through the incision in the cortex into the pelvis of the kidney. The gauze may be packed directly into the pelvis of the kidney instead of going through the cortex, but Livermore believes it better to have the action of the ichthyol and glycerin on both cortex and pelvis. The kidneys are then returned to their positions and the wounds closed with the drains coming out in the center of the wounds. The gauze should be renewed in twenty-four hours and the wounds again packed with fresh gauze saturated with the ichthyol glycerin solution. Repeat procedure till free diuresis is established.

### West Virginia Medical Journal, Wheeling

*April, VIII, No. 10, pp. 327-360*

144 Physiologic and Pathologic Relations of Eye and Accessory Sinuses of Nose. C. B. Wylie, Morgantown.
145 State Department of Health. F. V. Beitler, Halethorp, Md.
146 Need of State-Wide Sanitary Inspection. W. A. McMillan, Charleston.
147 Commercialism vs. Ethics. J. E. McDonald, Logan.
148 Present Status of Tonsil and Adenoid Surgery. I. Fawcett, Wheeling.
149 Case of Double Cryptorchidism. C. E. Grimm, St. Marys.
150 Case of Musculospiral Paralysis. M. Mendeloff, Charleston.
151 Ectopic Lentis. J. L. Dickey, Wheeling.

## FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

### British Medical Journal, London

*April 4, I, No. 2779, pp. 745-800*

1 Lister: Laboratory and Bedside. R. H. Russell.
2 *Infection by B. Coli in Puerperium, and on Infective Conditions of Pregnancy. H. J. S. Simson and J. M. Bernstein.
3 Plague in Ceylon. A. Castellani and M. Philip.
4 Instrument for Detection of Slight Degrees of Nasal Obstruction. H. A. Kisch.
5 Case of Temporo-Sphenoidal Abscess in Course of Chronic Otitis Media. A. Ryland.
6 Two Cases of Ocular Disease Associated with Pyorrhea Alveolaris. S. G. Tibbles.
7 Hygienic Aspect of Coal-Mining Industry in United Kingdom. F. Shufflebotham.

2. **Infection by B. Coli in Puerperium.**—In all cases of pregnancy and especially in primiparae, if there be symptoms pointing to bladder irritation, or a previous history of so-called ague or malaria, the authors insist that the bacterial

examination of a catheter specimen of the urine is indicated. If a condition of bacilluria be found, then a prophylactic course of vaccines is called for, and may prevent serious complications later on.

As regards treatment of the actual infection itself during the puerperium, Simson and Bernstein state that there can be no doubt that autogenous vaccines give by far the best results. In puerperal fever there has been a tendency to administer immediately antistreptococcus serum; but, though this may give favorable results occasionally in puerperal septicemias, it is obvious that it can be of no use in *B. coli* infections. It is certain that the stock *B. coli* vaccines are not nearly so efficacious as are the autogenous vaccines, for already the bacillus alters its characters with its environment, and it is usually one of the many atypical varieties of the *B. coli* which causes the infection. In Case 1 of this series no improvement followed the administration of a stock *B. coli* vaccine. While there must be delay in preparing an autogenous vaccine, there is no extreme urgency in these infections, and it is possible to hasten the process so that the first dose may be given in less than twenty-four hours. As a rule, improvement is rapid, and after the first dose the temperature may fall and the toxic symptoms be relieved, whilst the bacteria may disappear from the urine. But even so, one must be guarded in giving a prognosis of rapid return to health or in discontinuing the treatment too soon; for, though it is easy to control the bacterial activity, in some cases it is difficult and occasionally impossible entirely to inhibit them. Consequently the vaccines should be continued in increasing doses at increasing intervals of time for several weeks and the further treatment controlled by periodical examinations of the urine. Three cases of autogenous *B. coli* infection are cited.

### Bristol Medico-Chirurgical Journal

*March, XXXII, No. 123, pp. 1-96*

8 *Diseases of Lungs Associated with Presence of Friedländer's Bacillus. J. M. Clarke.
9 Unusual Conditions Found in Operating for Radical Cure of Hernia. C. A. Morton.
10 *Digital Percussion and Cardiac Sign in Carcinoma. W. Gordon.
11 Simulation of Aortic Aneurysm by Other Aortic and Cardiac Diseases. C. Coombs.
12 Fibroid Uterus. W. H. C. Newnham.
13 Hyperpiesis and Arteriosclerosis. C. W. J. Brasher.
14 Electric Reactions in Facial Paralysis, Especially in Reference to Prognosis in Post-Operative Cases. J. P. I. Harty.

8. **Diseases of Lungs.**—Clarke reports three cases of lung disease caused by the bacillus of Friedländer in which the distribution and character of the lesions were thus exactly those of progressive pulmonary tuberculosis. It does not correspond to the ordinary position of bronchiectases, which usually most affect the lower lobes. In one case differences from pneumococcal pneumonia were seen in the irregular oscillations of the temperature, the character of the sputum, which was yellowish-green, abundant and not blood-stained, and the absence of dense consolidation. The signs at the right apex for two or three days suggested the possible formation of a cavity. In two other cases the pulmonary lesions were those typical of chronic pulmonary tuberculosis with excavation. So typical were the lesions in character and especially in distribution, that from the physical signs the diagnosis of chronic phthisis was made. The pathologist reported that no tubercle bacilli could be found in the sputum after repeated and careful investigation. The sputum was large in quantity, purulent and slightly offensive. The first culture showed presence of *B. Friedländer* and *M. catarrhalis.* Repeated examinations for tubercle bacilli were made, but always with a negative result. There were no elastic fibers in the sputum.

10. **Cardiac Sign in Carcinoma.**—The cardiac sign in carcinoma referred to by Gordon is a remarkable diminution of the area of cardiac dulness in the recumbent posture as determined by digital percussion. In that posture the dulness, in the normal adult, begins above about the third costal cartilage, reaches rightwards as nearly as possible to the midsternal line, and measures across about 3 to 3½ inches at the level of the fifth costal cartilage. On the other hand, in the carcinoma patient who presents the sign, the cardiac dulness in recumbency begins above about the fourth or fifth costal cartilage, has its rightward edge about ½ inch or 1 inch to the left of the midsternal line, and measures across less than 2 inches at the level of the fifth costal cartilage. Often it measures less than 1 inch across. Sometimes there is no cardiac dulness at all. The sign is often associated with a remarkably soft and toneless pulse and feeble heart sounds.

Certain limitations exist as to the significance of the sign. Thus when any cause is present, tending, like ordinary emphysema, to reduce the area of cardiac dulness, then a very small dulness naturally conveys no special meaning. On the other hand, when there is any well-known cause of enlargement of heart dulness, such as albuminuria, valvular heart disease, pericarditis or retraction of lung from phthisis or past pleurisy, then the absence of the sign is equally without significance. Moreover, where the heart is displaced considerably upward the absence of the sign is unreliable, since the organ has been moved from a wider into a narrower space, in which it is not so free to fall back from the anterior chest-wall on recumbency. And lastly, where a large esophageal carcinoma has lain directly behind the heart, Gordon believes that the absence of the cardiac sign was due to the growth pinning the organ forward against the sternum and rib cartilages. Of a total of 111 cancerous cases analyzed by Gordon, 97 (87 per cent.) gave the sign, whereas of a total of 107 non-cancerous cases only 18 (16 per cent.) gave it.

### Glasgow Medical Journal

*April, LXXXI, No. 4, pp. 241-319*

15 Malingering. J. Collie.
16 Abdominal Emergencies. J. Morton.
17 Dangers of Light Anesthesia. G. H. Clark and E. P. Cathcart.

### Journal of Obstetrics and Gynecology of British Empire, London

*February, XXV, No. 2, pp. 53-112*

18 Positive Value of Abderhalden's Test in Diagnosis of Pregnancy. R. L. M. Wallis.
19 Successive Tubal Gestation Associated with Blood Cyst of Ovary. Laparotomy on each Occasion. Recovery. A. C. Butler-Smythe.
20 Three Atypical Cases of Post-Partum Pyelitis. H. L. Murray.
21 Uterus Didelphys, Both Horns of which have been Pregnant at Different Times. J. H. Smith.
22 Hysterectomy for Hydatid Mole. W. E. Fothergill.
23 Carcinoma in Double Uterus (Uterus Septus Bicollis with Vagina Duplex.) R. C. Buist and J. M. Valentine.
24 Uterus in Hernial Sac of an Hermaphrodite. S. Clark.

### Lancet, London

*April 4, I, No. 4727, pp. 947-1016*

25 Medico-Social Problems from an Insurance Point of View. T. Oliver.
26 *Physiology and Pathology of Uterine Hemorrhage. H. B. Whitehouse.
27 *Causes of Failure of Vaccine Therapy. W. M. Crofton.
28 Operative Treatment of Pulmonary Tuberculosis. H. M. Davies.
29 Diagnosis of Pulmonary Tuberculosis by Roentgen Rays. A. C. Jordan.
30 *Case of Thoracic Aneurysm of Unusual Size. G. Cooper.
31 *Extrathoracic Aneurysm of Transverse Arch of Aorta. D. W. K. Moody.

26. **Uterine Hemorrhage.**—It appears desirable to Whitehouse that a careful investigation should be made of the discharge in every case of obscure uterine bleeding. The points in the investigation to which special attention should be directed are: 1. The presence or absence of thrombi within the vagina. 2. The formation of thrombi within the discharge after the fluid has been allowed to stand. 3. The thrombolytic power of the secretion. 4. The calcium content of the same. 5. The microscopic characters of the deposit obtained after centrifugalization of the fluid collected directly from the uterine cavity in order to obtain an index of the degree of tissue destruction. Six hundred and eight cases were analyzed by Whitehouse.

It was evident that displacements of the uterus do not directly produce excessive uterine hemorrhage. Thus, out of a total of eighty-eight cases of retrodisplacements only thirty-eight gave evidence of menorrhagia and of the latter only fifteen had intermenstrual losses. In those cases in which hemorrhage was present a careful review of the case histories did not show that the displacement was more acute than in patients in whom no bleeding was present. On the other hand the proportion of irregular bleeding was considerably greater in the complicated cases than in those that are simple. With prolapsus uteri it was found that out of a total of eighty-nine cases only thirteen showed evidence of excessive bleeding. Fibrosis and chronic metritis was in a very large proportion of cases associated with uterine bleeding. Thus, in a total of twenty-seven cases, twenty-three suffered from menorrhagia. Hemorrhage in cases of fibrosis uteri is probably due to two factors: (a) changes in the endometrium, and (b) loss of contractility of the metrium owing to its replacement by fibrous tissue. Out of a total of seventy-three cases of endometritis fifty-six were associated with menorrhagia and twenty-nine with metrorrhagia. A thorough investigation of the cases classed clinically as "endometritis" showed that sixty-one of the patients were married, and of these forty-three directly attributed the irregular hemorrhages to the last labor or abortion at intervals varying from three months to one year. The irregularity, in fact, dated from the resumption of function. Examination of the curettings revealed the following facts: (a) twenty-five cases showed what in the past was designated "glandular endometritis"; (b) nine cases showed all the characteristics of the so-called "interstitial endometritis" of Ruge's classification; (c) atrophic "endometritis" was present in two; (d) plasma cells and marked leukocytic infiltration appeared in seven. In other words, thirty-four exhibited only evidence of those changes known to be but physiologic, and therefore could not be classed as "endometritis." Endometritis of septic origin does not appear to produce uterine hemorrhage. Thus, in a series of fifteen cases where curettage was performed for discharge and pain, the endometrium was infiltrated with plasma cells and leukocytes. Hemorrhage was absent. Hypertrophy of the endometrium, in its diffuse form, occurs under the name of "glandular hypertrophy"; its localized variety is the common "adenomatous polypus." Hemorrhage is usually profuse and appears to be due to excessive thrombolysis of the uterine clot. Cystomata of the ovary rarely cause interference with the menstrual function. Displacements of this organ as a general rule do not produce excessive uterine hemorrhage. Hypertrophy of the ovary affects the stroma rather than the Graafian follicles, and the close association of the condition with hypertrophy of the endometrium appears to afford clinical evidence that it is from the ovarian stroma that the specific hormone is derived. Pelvic inflammation is not infrequently associated with excessive hemorrhage from the uterus. Thus in 176 cases 67, or 38 per cent., were accompanied by menorrhagia. Whitehouse is inclined to think that the hemorrhage is the result of interference with venous return rather than to any specific effect either on endometrium or ovary, since it occurs not only in connection with inflammatory lesions related to the sexual organs, but also in cases secondary to extragenital inflammation, such as appendicitis. The value of curettage in the therapeutics of uterine hemorrhage Whitehouse says is principally for diagnostic purposes. If the examination of the curetted endometrium is taken in conjunction with an analysis of the menstrual discharge, and care taken to correlate the appearances of the endometrium with the period of the sexual cycle, much valuable information may be gained as to the cause of a specific hemorrhage. Curettage at the two extremes of sexual life is, in his opinion, a useless procedure except for diagnostic purposes. It is not possible to alter the character of the endometrium by any amount of curetting This is proved by examination of repeated curettings from the same uterus, and it accounts for the fact that in glandular hyperplasia of the endometrium curettage is only of temporary benefit. Treatment to be successful must be based on a physiologic and pathologic basis. Thus, where hemorrhage is due to the absence of thrombokinase, attempts may be made to replace the same. Fibrin ferment directly applied to the endometrium is also of service in directly checking hemorrhages of this nature. If bleeding is due to excessive thrombolysis, the result of hyperplasia of the endometrium, temporary relief may be obtained by curetting. If bleeding recurs Whitehouse suggests that partial oöphorectomy be performed. Where hemorrhage appears to be the result of venous statsis appropriate means must be taken to relieve the same, either by purgation in the case of portal congestion or operation where the cause is severe and chronic inflammation. In those cases in which the uterus has lost its power of regulating the supply of blood to the endometrium, such as in fibrosis or arteriosclerosis, hysterectomy appears to be the safest and best method of treatment.

27. **Causes of Failure of Vaccine Therapy.**—The potential causes of failure mentioned by Croften are: 1. Failure of patient to react. 2. Failure to diagnose the infecting microbes. 3. Incomplete immunization. 4. Failure to give the doses at proper intervals.

30. **Thoracic Aneurysm of Unusal Size.**—The tumor in Cooper's case measured 22¼ inches round the base, 9 inches from the upper pole of the tumor to the lower pole across the most prominent part, and 11½ inches measured right to left across the tumor.

31. **Extrathoracic Aneurysm of Transverse Arch of Aorta.**—In Moody's case the tumor measured 23 inches in circumference and 11 inches across.

### Quarterly Journal of Medicine, London

*April, VII, No. 27, pp. 209-323*

32 *Paroxysmal Tachycardia. H. G. Butterfield and G. H. Hunt.
33 Cholesterin: An Account of Its Relations to Pathology and Physiology. J. W. McNee.
34 *Bilateral Salivary Swellings (Mikulicz' Disease). H. Thursfield.
35 *Prognosis of Acute Articular Rheumatism, with Special Reference to Cardiac Manifestations. C. G. Kemp.
36 Anaphylaxis and Its Bearing on Medicine. Critical Review. J. McIntosh.
37 Bacterial Endocarditis. Critical Review. I. Simons.

32. **Paroxysmal Tachycardia.**—Four cases of paroxysmal tachycardia are described by Butterfield and Hunt, in three of which the heart was examined histologically. In the first case the focus from which the ectopic beats arose was diagnosed as being situated in the ventricles. Post mortem, the interventricular septum was the site of the most extensive disease. In the second and third cases the tachycardia was supraventricular in origin, in one case being auricular, in the other either auricular or nodal. In both these cases the most marked lesions were found in the neighborhood of the sino-auricular node. The histologic examination thus confirms the diagnosis made from the electrocardiograms. The fourth case was one of auricular origin; in the intervals between the attacks the patient enjoyed fairly good health.

34. **Bilateral Salivary Swellings.**—Clinically, Thursfield says, it is possible to recognize at least eight groups of cases in which bilateral swellings of the salivary glands, either with or without an accompanying enlargement of the lymph-nodes, form the most characteristic symptoms. 1. A congenital hereditary or family affection. 2. "Mikulicz' disease" proper. 3. "Mikulicz' disease" with involvement of the lymphatic apparatus. 4. Leukemia. 5. Tuberculosis. 6. Syphilis. 7. Gout. 8. Sialodochitis fibrinosa; intermittent or periodic salivary swelling. In addition there are from time to time met with cases which do not appear to belong to any of these groups.

The treatment which appears to promise the best results is to remove carefully any possible source of chronic infection, e.g., decayed teeth; to seek to establish the general health; to give arsenic in the largest doses which can be tolerated and to treat the actual swelling with the Roentgen ray.

35. **Prognosis of Acute Articular Rheumatism.**—An examination of a considerable number of cases of acute articular rheumatism has convinced Kemp that 23 per cent. of patients go through one or more attacks of acute rheumatism without any clinical affection of the heart, irrespective of the age when first attacked; 22 per cent. developed signs of carditis in the acute stage, these signs disappearing during convalescence; 18 to 20 per cent. of the cases which develop signs of endocarditis, not clearing up before patient leaves the hospital, have no permanent valvular lesion, the murmurs being

due to myocarditis, or incompetence from temporary hyperemia of the valves, associated with dilatation. If a synovial membrane can recover, why should not a heart valve? In 14.5 per cent. of cases with acute rheumatism endocarditis of severe type, the murmurs undergo a change, resulting in the disappearance of one or more of the murmurs, such murmurs being due to associated dilatation; as a rule, the murmurs due to myocarditis are softer in character than those due to valvular disease. Cases in which the heart is going to recover completely show signs of such recovery within twelve months of the acute attack, though the process may not be completed till some years later. Graupner's test for the estimation of the cardiac efficiency has not been proved to be of any value in enabling one to recognize the presence or degree of cardiac weakening, not appreciable by the methods already in general use. The amount of physical work which each individual can do in earning his or her living is a far more reliable and efficient test of the heart's working capacity.

### Bulletin de l'Académie de Médecine, Paris

*March 17, LXXVIII, No. 11, pp. 383-414*

38 Adiposis Dolorosa in Man of 55. (Maladie de Dercum avec infiltrations massives disséminées et hyperplasies mammaires chez un adulte.) H. Hallopeau and E. Dainville.
39 Case of Congenital Torticollis. (Considérations pathogéniques et thérapeutiques.) L. Picqué.

### Lyon Médical, Lyons

*March 8, XLVI, No. 10, pp. 521-560*

40 Tuberculosis a Cause of Nodular Erythema. Carle.
41 Antityphoid Inoculation Eradicates Long Endemic Typhoid in Certain City District. (Une expérience de vaccination antityphique en champ clos.) E. Briau.

*March 22, No. 12, pp. 633-680*

42 *Pathogenesis and Etiology of So-Called Idiopathic Hypertrophic Myocarditis. J. Paviot. Commenced in No. 11.

42. **Myocarditis and Hypertrophy.**—Paviot describes in detail two cases of large hypertrophied heart, without valvular lesions, with no sclerosis of the cardiac muscle and without any primary lesion of the kidneys. This so-called idiopathic myocarditis is a slow and long continued inflammatory process caused in the two cases described by tuberculosis but it may be due to other diseases, particularly syphilis.

### Presse Médicale, Paris

*March 25, XXII, No. 24, pp. 229-236*

43 *Tropical-Germ Carriers. (Importateurs de maladies exotiques.) L. Landouzy and R. Debré.

*March 28, No. 25, pp. 237-244*

44 Cancer in the Appendix. (Tumeurs endocrines de l'appendice.) A. Gosset and P. Masson.
45 Tardy Bone Disease from Inherited Syphilis. P. V. Badin.
46 *Congenital Absence of Sacrum. (Bassin rétréci par absence de sacrum.)* P. Desfosses.

43. **Importers of Germs of Tropical Diseases.**—This communication was summarized in the Paris Letter, p. 1267.

### Revue de Médecine, Paris

*March, XXXIV, No. 3, pp. 161-240*

47 *Hyperchlorhydria and Hyperthyroidism. G. Marañon.

47. **Hyperthyroidism and Hyperchlorhydria.**—Marañon says that certain cases of functional gastric complaints are caused by disturbances in internal secretion. Hyperchlorhydria is frequently found associated with symptoms indicating excessive functioning of the thyroid gland. Hyperthyroidism includes many cases that do not show the classical symptoms of Basedow's disease. They are the mild or abortive cases, the *formes frustes* of the French authors. He calls these the vagotonic cases; and it is they, rather than the typical exophthalmic goiter cases, that show hyperchlorhydria. He thinks that the excessive secretion of gastric juice is caused by stimulation of the pneumogastric nerve by the thyroid secretion.

Twenty case-histories are given. He concludes that in many cases now diagnosed as gastric neuroses there is a latent hyperthyroidism that is not discovered. This is confirmed by the fact that many of his patients in this group improved under antithyroid medication. It is this class of patients with hyperthyroidism that are benefited most by thyroidectomy. The best drug remedy is atropin as it has an inhibitory effect on the pneumogastric.

### Revue Médicale de la Suisse Romande, Geneva

*February 20, XXXIV, No. 2, pp. 89-136*

48 Infant-Welfare Work. (Puériculture élémentaire à l'usage des médecins, des sages-femmes et des mères de famille.) A. Montandon.
49 Experiences at the Balkan War. (2 mois en Serbie pendant la seconde guerre balkanique.) E. Bourquin.
50 Serious Serum Sickness after Injection of Antitetanus Serum Eleven Years after Injection of Diphtheria Antitoxin. P. Gautier.

*March 20, No. 3, pp. 137-232*

51 *Hemolytic Jaundice. (Les ictères hémolytiques.) M. Roch.
52 *Blunders in Diagnosing Extra-Uterine Pregnancy. L. Aubert.
53 *Intraspinal Injection of Magnesium Sulphate in Treatment of Tetanus. H. Vulliet.
54 *Injections of Oxygen in Treatment of Nervous and Mental Disease. M. Dardel.

51. **Hemolytic Jaundice.**—The special feature about this form of icterus is the intensity of the jaundice in contrast to the fine state of the health in general. Roch reviews the history and various questions connected with this type of jaundice, commenting on the enlargement of the spleen and the apparently normal functioning and behavior of the liver except that small concrements of pigment may develop calcium bilirubinate stones which may induce attacks of colic in the liver. The abnormal fragility of the red corpuscles is shown by adding a drop of the blood to each of six test-tubes containing from 60 to 70 drops of a 7 to 9 per thousand salt solution with enough drops of distilled water added to bring each to 70 drops. Each tube is centrifuged and the fluid turns pink or red proportionally to the resisting power of the reds. The serum does not seem to contain free hemolysins, but the spleen is very large and at times is painful. One patient has developed a pigmented retinitis, showing that the excess of pigment is not always an indifferent matter. Treatment of underlying syphilis, malaria or helminths should be supplemented by means to prevent hemolysis and stimulate regeneration of the blood, arsenic, calcium chlorid, organotherapy or cholesterin. The latter seems to be proving useful in checking hemolysis in pernicious anemia, hemolytic icterus and hemoglobinuria. It has not been used in a sufficent number of cases for a decisive judgment, but to date the results have been very encouraging. Splenectomy might also be considered in extreme cases; exposure to the Roentgen rays might answer the same purpose.

52. **Blunders in Diagnosing Extra-Uterine Pregnancy.**—Aubert tabulates the details of five cases in which a tubal pregnancy was mistaken for appendicitis, uterine abortion, perforation of an ulcer or twisted ovarian cyst. A delay in the menses for a few days to three months was found in all; one had no pain before the acute onset of trouble; another had had abdominal pains for a year; the cervix was hard in all but two cases. The right culdesac felt doughy and tender in one, a trifle tender in another; negative in a third, but in the three others a tumor gradually developed in the adnexa. The main point is to bear in mind that women sometimes deceive themselves, while others strive to deceive the physician, not only in regard to a pregnancy but any gynecologic affection. Even when abortion is diagnosed its extra-uterine location may be overlooked.

53. **Intraspinal Injection of Magnesium Sulphate in Treatment of Tetanus.**—Vulliet reports two cases of tetanus but only one patient recovered and this was not the one treated with magnesium sulphate. He warns that while this drug seems to be proving a powerful weapon in fighting tetanus, yet we must not forget that it is a two-edged sword, liable to do more harm than good. He injected into the spinal canal 0.06 c.c. of a 15 per cent. solution repeated two days later. The boy's leg had been cut by a cart and a physician had disinfected the wound and coaptated the lips with clamps. It healed promptly but symptoms of tetanus developed in two weeks.

54. **Injection of Oxygen in Nervous and Mental Disease.**—Dardel was encouraged by the success of Toulouse in this line to try subcutaneous injections of 300 to 500 c.c. of oxygen

in various nervous and mental affections, and here reports the results in twelve cases. The procedure seems entirely harmless, he says, and brought apparently natural sleep to persons long suffering from insomnia or restlessness. It seems to act like a sedative and enables drugs to be dispensed with. Even in the cases of chronic mental disease the sedative action seemed beyond question.

### Revue Pratique d'Obstétrique et de Gynécologie, Paris

*March, XXII, No. 3, pp. 67-92*

55 Pelvic Neuralgia of Genital Origin. (Les névralgies pelviennes d'origine génitale chez la femme et leur traitement.) M. de Lepinay. Commenced in No. 2.
56 Conservative Treatment of Inversion of Uterus. M. Vautrin.
57 Management of Ovarian Tumors during Delivery. P. Puech and J. Vanverts.

### Semaine Médicale, Paris

*March 25, XXXIV, No. 12, pp. 133-144*

58 The Pulse in the Inferior Vena Cava and the Dance of the Jugulars in Severe Anemia. L. Bard.

*April 1, No. 13, pp. 145-156*

59 Cortical Ataxia from Automobile Accident, Falling on the Head; Localization by Segments. F. Rose.

### Archiv für klinische Chirurgie, Berlin

*March 24, CIV, No. 1, pp. 1-300. Last indexed March 28, p. 1055*

60 *Early Operative Treatment of Exophthalmic Goiter. (Die Frühoperation des Morbus Basedow.) E. Liek.
61 *Interposed Fat Flaps in Operations on Nerves and Tendons. (Die autoplastische Fettransplantation zur Neurolysis und Tendolysis.) R. Eden and E. Rehn.
62 Primary Sarcoma of the Gall-Bladder. K. Iwasaki.
63 *Traumatic Perforation and Peritonitis in a Case of Walking Typhoid. R. Carnelli.
64 *Importance of Testing Heart Functioning before Operations. (Funktionsprüfung des Herzens und ihre praktischen Ergebnisse für die Chirurgie.) W. Hofmann.
65 *Habitual Dislocation of the Shoulder. E. O. P. Schultze.
66 Supravesical Femoral Hernia. Gontermann.
67 *Operative Treatment of Wandering Kidney. H. Scheuermann.
68 Cartilage Tumors at Cartilage Joints. (Gelenkchondrome.) R. Eden.
69 Omentum to Arrest Hemorrhage in Liver. (Anwendung des isolierten Netzes zur Stillung der Leberblutung.) N. Beresnegowsky.

60. **Early Operative Treatment of Exophthalmic Goiter.**—Liek has operated in 28 cases of exophthalmic goiter in the last four years; in all but 6 the disease was of a severe type. This experience and review of the literature have convinced him of the vital necessity of educating general practitioners to realize the importance of an early operation in every case of exophthalmic goiter, as soon as the diagnosis is made. This puts an end to the excessive thyroid functioning before the resulting products have irreparably damaged the heart, kidneys, liver, lymphatic system, etc. The thyroid tissue is firmer and easier to operate on at this early stage and the heart is in better condition. The results are prompt and permanent; especially noticeable is the rapid and complete subsidence of the exophthalmos. He says that the insurance companies are realizing the advantages of an early operation and now send to the surgeon at once every case of Basedow, having found that this restored the earning capacity without further delay. These are all early-stage cases and it is in this group that the most striking benefit is realized. Liek had two fatalities, both in old Basedow cases; the patients were terribly frightened and both died before the operation proper was commenced. He now refuses to operate when the patient is in such fright. Those with vagotony seem in a more precarious condition than others, as also those at the height of intoxication—evident in the excitement and muscular weakness while the more rapid pulse after slight exertion and a trifle of dyspnea are signs of beginning exhaustion on the part of the heart. In normal conditions there is a difference of from 0.1 to 0.3 degree Centigrade between the temperature in the axilla and rectum; when there is a difference of a whole degree this suggests chronic weakness of the heart. At the same time he emphasizes that extreme excitability seemed to have a greater influence on the outcome than the condition of the heart in his experience.

61. **Interposition of Fat Tissue in Operations on Tendons and Nerves.**—Considerable clinical and experimental research is here reported, all confirming the advantages and lack of drawbacks of the method of protecting nerves and tendons, at points exposed to special danger from adhesions or pressure by wrapping them in an autoflap of fat tissue. The foreign body irritation is slight and the flap retains its structure and regenerates so that it ensures permanent protection. The flap healed smoothly in place even in infected cases.

63. **Walking Typhoid.**—Carnelli relates that an apparently healthy man chasing his dog hit his abdomen against a milestone and experienced such pain that he could not rise. Laparotomy the same day disclosed that he was at the third week of typhoid. The contusion burst one of the typhoid ulcers and peritonitis followed, but thanks to the prompt laparotomy the man soon recovered.

64. **Testing the Functional Capacity of the Heart.**—Hofmann discusses the various methods in vogue for this purpose and lauds Katzenstein's procedure as the simplest and most reliable while it does not weary the patient. The pulse and blood-pressure are recorded several times and then both femoral arteries are compressed with the fingers just below the inguinal ligament. The compression is kept up for at least two and a half minutes, and then pulse and blood-pressure are recorded anew. The way in which the heart reacts to this obstacle to the circulation shows conclusively to what extent it can be relied on. With a functionally capable heart the blood-pressure rises while the pulse remains unmodified or grows slower. With a weak heart the blood-pressure does not go up and generally goes down while the pulse becomes accelerated. Some have said that this puts too much of a strain on a weak heart, but in the numerous cases in which the method has been applied in Katzenstein's service no by-effects have been observed except a slight syncope in one patient anemic from gastric hemorrhages. The method is applied as a routine procedure before a major operation and the particulars are tabulated in twenty-eight stomach or duodenum cases; in thirty intestine, gall-bladder or hernia cases; in six breast cases; ten heart and goiter cases, and in twelve miscellaneous cases. Hofmann advocates applying this test several times before attempting a serious operation and reiterates that the procedure is harmless. In his one case of slight syncope all disturbances ceased at once when the compression was stopped.

65. **Habitual Dislocation of the Shoulder.**—Schultze gives an illustrated description of twenty-three cases and presents clinical and anatomic evidence to show that the accident causing the dislocation in the first place had not caused a lengthwise tear in the capsule but had torn the capsule loose from its attachment to the humerus or scapula. The retracted, jagged edges were unable to coaptate spontaneously and connective tissue grew into the gap. This answered the purpose in some cases but in others the least overstrain tore the connective-tissue bridge and the dislocation returned. This explanation of the causes of habitual dislocation is sustained by the frequent relapses after treatment by the most approved methods, operative or otherwise, had been applied to twenty-six shoulders (twenty-three patients) as he describes in detail. One patient, a man of 60, had had the dislocation return eleven times; an injection of blood into the joint warded off recurrence for eighteen months at one time. Schultze declares further that the changes in the bones, etc., are all secondary to this tearing off of the capsule from the bone. The proper treatment, he says, is to expose and examine the joint from the axilla, at the lower margin of the pectoralis. If there are no pathologic changes the capsule can be effectually closed by a suture. If the capsule stump has retracted and shriveled, he draws it down and sutures it, thus making the capsule cavity smaller and then over the suture nails to the bone a well-fitting flap of fascia. This technic has been applied to date only on the cadaver but it proved extremely simple and the joint afterward effectually resisted all attempts to dislocate it anew.

67. **Operative Treatment of Movable Kidney.**—Scheuermann reviews the experiences in 189 cases of wandering kidney in which Rovsing's method was applied, nearly a hundred pages being devoted to the report which has no illustrations. He gives a historical sketch of the subject of

wandering kidney and the measures that have been tried to relieve it. Experience has finally taught, he says, that decapsulation in connection with suture of the capsule proper is the most reliable procedure while it makes the least demands on the patient. The kidney is drawn up into the incision; the latter skirts the margin of the erector spinae, from the tenth rib to 2 cm. below the twelfth, where it turns forward at a sharp angle for 6 or 8 cm. The drawn up organ is cleared from all adhesions with scrupulous care and the true capsule is incised along the convex margin of the kidney with a short transverse incision at each pole. The capsule is then turned back on each side, leaving a rectangular opening. A stout silk thread (No. 4 English) is then carried around the lower pole of the kidney weaving it in and out of the true capsule beyond the area of the incision. This suspends the lower pole as in a sling and the kidney is then restored to place. The ends of the silk are brought out separately each side of the incision in the skin.

When the kidney is thus pushed and drawn up into its normal place, with room for normal play, the patient is turned on his back and is not allowed to get up for four weeks. The threads are removed the third week. In the uncomplicated cases all trouble was permanently at an end after the operation in 85 per cent.; adding to these the improved cases, 95.4 per cent. of the patients were cured or materially benefited. The decapsulation ensures adhesions which anchor the kidney firmly in place to the transverse fascia, and not to fat tissue. The parenchyma is left intact. The necropsy in a few cases after death from intercurrent disease and in animals confirmed the reliable outcome. The cases in which symptoms recurred are analyzed seeking for the cause. One of the patients died from peritonitis, suppuration occurring along the course of the silk. This is the only one of the four deaths for which the operation can be held responsible. It suggests that silk impregnated with silver nitrate might be preferable.

### Berliner klinische Wochenschrift

*March 30, LI, No. 13, pp. 581-628*

70 Progress in Treatment of Syphilis. J. Citron.
71 *Pathogenesis of Pernicious Anemia. A. Cederberg.
72 Prophylaxis of Cholera in Servia, 1913. Aumann.
73 *Operations to Relieve Pressure on Sciatic Nerve. (Druckentlastende Operationen bei Ischias.) B. Heile.
74 *Optic Estimation of the Blood-Pressure. (Die Lehre vom Blutdruck und die optische Blutdruckmessung.) S. Federn.
75 Keratohyalin. (Zur Chemie der Zelle. V.) P. G. Unna.
76 Origin of Cancer. (Entstehung des Krebses.) A. Theilhaber.
77 Powder Treatment of the Vagina. (Zur Puderbehandlung des weiblichen Fluors.) H. Oppenheim.

71. **Causes of Pernicious Anemia.**—Cederberg presents evidence to sustain his view that pernicious anemia is the result of a kind of anaphylaxis which is brought about by the products of break down of protein getting into the blood by seeping through a constitutionally inferior intestinal wall. We know this to be the cause of the anemia when certain helminths render the intestinal wall permeable and we know that the patients recover when the helminths are expelled. In the essential form the intestinal walls become naturally permeable and the blood suffers from this continuous parenteral supply of the products of protein metabolism. He elaborates this theory and shows how it explains numerous phenomena. The practical conclusions are the necessity for restricting to the lowest possible minimum the intake of alien albumin. The intestines may be able to take care of a small amount and assimilate it completely, leaving none to get into the parenteral circulation. It may be possible further to supply the needed albumin in a form which is free from the dangers of the ordinary forms now used.

73. **To Relieve Pressure on Sciatic Nerve.**—Heile discusses the preferable technic for operative relief of pain from pressure or traction on the sciatic nerve, after failure of internal measures. He has found acute sciatica, especially sciatica developing after an accident, much easier to cure than moderate sciatica in patients with a familial tendency to rheumatism. When severe sciatica persists unmodified by persevering internal treatment, he injects 100 or 200 c.c. salt solution directly into the nerve. This loosens up the fibers and may break up adhesions that have formed between the fibers and the sheath of the nerve. He makes the injection just as the nerve emerges from the sacrosciatic foramen, at the center of a line drawn from the superior posterior spine to the tuberosity of the ischium. In four exceptionally severe cases of years' standing in which no measures had given but transient relief, he cured the sciatica at one stroke by the following operation, the interval since up to fifteen months. He exposed the nerve where it pierced the pelvis, opened the outer sheath and separated a network of adhesions inside. He ran his finger into the foramen to learn if there was any pressure on the nerve beyond and found it necessary in one case to excise the arteria comitans or the pyriform muscle as they seemed to press on the nerve. He concluded by injecting salt solution into the nerve beyond the point he could reach. The nerve thus carefully isolated was buried between the fibers of the gluteal muscle, drawn apart for the purpose. The results in these desperately chronic and agonizing cases were so surprising that he does not wait for further confirmation to publish the method. When a preliminary injection relieved pain, even temporarily, this indicated that mechanical factors were involved, and the case seemed promising for permanent operative relief in this way. The same principle can be applied to other nerves. There were never any symptoms suggesting impairment of function of any of the fibers of the nerve afterward.

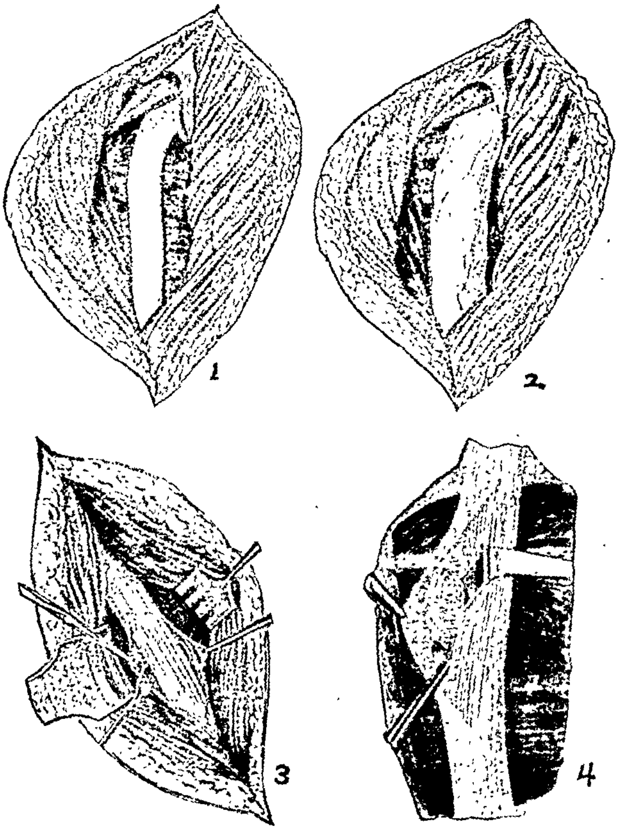

Fig. 1.—Sciatic nerve as it emerges from the sacrosciatic foramen unmodified.
Fig. 2.—Sciatic nerve after intraneural injection of salt solution.
Fig. 3.—Sciatic nerve after stripping off the perineurium, without adhesions.
Fig. 4.—Sciatic nerve with adhesions extending to the perineurium.

His experiments on the cadaver show that this skeletonizing of the nerve, as he calls it (*Skelettierung*), is very simple and easily done, the perineurium stripping off readily. It seems to be thicker than usual in the sciatica cases—further testimony to preexisting inflammation. In the four cases reported there was "trunk sciatica" in one, and in two others plus irritation in the lumbar plexus which he regards as evidence of "root sciatica," plus scoliosis and tenderness in the crest of the ilium. In all the cases he removed the outer sheath entirely and stripped off as much as possible of the tissue binding the fibers together. The separate bundles of nerve fibers then lay entirely isolated, connected only by the anastomosing nerve fibers. He removed only such parts of the membrane as could be stripped off easily.

74. **Optic Estimation of the Blood-Pressure.**—Federn expatiates on the importance of the state of the blood-pressure, insisting that this is as important for internal medicine as infection for surgery, and that only when this is generally appreciated will we be able to utilize to the full the recent achievements in the medical sciences. He published his first article on the subject in 1894, but his statement that the blood-pressure varies materially at different points in the body seemed so revolutionary that no one took the trouble to control his statements. But he declares that time has only confirmed the importance and value of his findings and he has been all these years perfecting a method within the reach of every practitioner and requiring only good eyesight. All methods of estimation of the blood-pressure which depend on compression of a large area, as with the Riva-Rocci cuff, render anemic the capillaries in this large area and thus modify the local blood-pressure and render the findings variable and unreliable. This source of error is avoided with the Basch bulb which compresses merely the artery alone. A straw stuck to the skin at the point where we usually palpate the pulse moves with the pulse. The pulse is thus rendered evident to the eye; the straw responds even more sensitively than the finger can feel the pulse. He measures the blood-pressure in a small artery over the tibia, and in the superior anterior intercostal artery, in addition to the arteries ordinarily examined. The pressure in this intercostal artery shows at once the functional capacity of the heart while the artery in the tibia shows the curve in the blood-pressure from one menses to another, and often gives notice when conception has occurred. It may be necessary to examine the straw index through a magnifying glass, one mounted like a telescope, to detect its movements. The straw index is fastened to a disc of paper or cork, 5 to 6 mm. in size, and this is stuck to the point where the pulse is felt. Then pressure is applied to the artery above with the Basch sphygmomanometer. When the flow of blood through the radial artery, for instance, is arrested by pressure from the Basch bulb, the straw indicator stops moving. But soon it starts up again to move, and no amount of pressure on the artery above can stop it, and this occurs just the same whether the indicator is glued to the point where the radial pulse was formerly perceptible or on regions near by where no pulse could be detected previously. The compression of the artery has altered conditions in the local circulation so that pulsation is evident where there is no artery, merely capillaries in the region. His optic method of determining the blood-pressure is thus based on the pressure in the capillary system, and he asserts that the findings are constant and instructive, with a precision beyond that of any other method to date. The article is not illustrated.

### Deutsches Archiv für klinische Medizin, Leipsic

*CXIII, Nos. 5 and 6, pp. 441-632. Last indexed April 4, p. 1127*

78 Multiple Myeloma with Bence-Jones Albuminuria and Metastasis in the Right Tonsil. H. Schütz.
79 *Too Much Importance Attached to Lymphocytosis in Diagnosis. G. Huhle.
80 *Blood-Pressure and Energometer Exami.ations at High Altitudes in Cardiovascular Disease. P. Schrumpf.
81 The Venous Pulse. E. Veiel and W. Kapff.
82 Aphasia in the Japanese. T. Asayama.
83 The Production of Meat Intoxication in Dogs with Eck's Fistula. F. Fischler.
84 Influence of the Vagus on the Human Heart. H. v. Hoesslin.
85 Sugar Content of the Blood. H. T. Bing and B. Jakobsen.
86 Effect of Internal Secretion on Dentition and Development of the Hair. A. Josefson. See editorial, p. 1334.
87 Drug Tests of the Vegetative Nervous System. M. Wentges.

79. **Lymphocytosis.**—Huhle examined the blood in 110 cases of nervous disorders in some of which there were also organic diseases, including disease of the liver and heart muscle, infectious diseases, blood disorders and disturbances of metabolism. Aside from the cases in which lymphocytosis was to be expected, he found it present in forty-five cases without any apparent reason. He thinks entirely too much importance is attached to it in diagnosis. In a non-febrile adult with repeated examinations we should pay no attention to a lymphocytosis of less than 35 to 40 per cent. This would exclude many cases now regarded as lymphocytosis, and a new basis would have to be established for the evaluation of the condition.

80. **Effect of High Altitudes in Disease of the Heart and Vessels**—Schrumpf considers altitudes only up to 7,000 feet. It is generally assumed that it is dangerous to send patients with any form of heart disease to a high altitude, and this is based on the belief that blood-pressure is increased at such altitudes. Schrumpf shows by tabulated findings in a number of cases that pathologic blood-pressures are improved, that is, high pressures are reduced and low ones increased, together with an improvement in the general condition. He says that a high altitude is actually indicated in some forms of heart disturbance, such as those in anemia, sclerosis, too rapid growth in adolescence, general asthenia, toxemias, the uric-acid diathesis, mild arteriosclerosis, fatty heart, nervous arhythmia and vasomotor neuroses. Compensated valvular lesions and mild cases of myocarditis were also favorably influenced in his experience by high altitudes. The mountains are directly contra-indicated in uncompensated valvular lesions and particularly in coronary sclerosis. In all cases care should be exercised in changing from a low to a high altitude, the change should be gradual, with repose at first for a day or two.

### Deutsche medizinische Wochenschrift, Berlin

*March 26, XL, No. 13, pp. 625-680*

88 Treatment of Acute Threatening Sinusitis. (Nebenhöhleneiterungen.) O. Kahler.
89 *Acute Leukemia. J. Citron.
90 *Professional Injury from Radio-Active Substances. F. Gudzent and L. Halberstaedter.
91 Technic for Serodiagnosis. (Einfluss des Blutgehaltes der Substrate—Organe—auf den Ausfall der Abderhaldenschen Reaktion.) A. E. Lampé and G. Stroomann.
92 Cc [illegible] l Sphygmography. E. Veiel.
93 *Pc [illegible] /omen. (Perniziöse Anamie und
94 Leukocytosis in Small-Pox and after Vaccination. (Das Blutbild bei Pocken und Impfpocken. II.) E. Erlenmeyer and E. Jalkowski.
95 Epithelial Nodules in Palates of Young Children. (Funktionelle Bedeutung der sogen. Epithelperlen am harten Gaumen von Feten und Kindern.) K. Peter.
96 Ejaculation Impotency. (Seltene Potenzstörung.) G. Flatau.
97 Friedmann's Comment on the Fatality after His Remedy; Reply. (Zur Frage der Giftigkeit des Friedmannschen Tuberkulosemittels.) F. F. Friedmann, O. Vulpius and K. Laubenheimer.

89. **Acute Leukemia.**—Citron reports the case of a previously healthy and well-to-do man of 50 who developed acute leukemia with hemorrhages from the mouth and death from progressive weakness in six months. The man had been a vegetarian for many years and scorbutus had been the diagnosis at first until examination of the blood showed typical micromyeloblast leukemia. In a second similar case nothing but examination of the blood gave the clue to the clinical picture. Citron draws the important lesson from his study of these cases that leukemia is unmistakably an infectious disease and that acute leukemia develops when the virus attacks a person constitutionally inferior, such as with the thymic-lymphatic status or an organism that has been artificially placed in a condition analogous to the thymic-lymphatic status by exposure to the Roentgen rays. The mobilization of leukocytes is the response of the organism to the invading virus, and we are on the wrong track, he declares, when we attempt to destroy the leukocytes unless they are mobilized to such an extent as to be directly mechanically injurious. Until we learn what the virus is, and can thus treat leukemia understandingly, it is better, he declares, to acknowledge our helplessness rather than to cradle our patients in illusions of therapeutic measures which go counter to what we already do know.

90. **Professional Injuries from Radio-Active Substances.**—In six of the twelve cases reported the patients were connected with the radiotherapy department of the Charité hos-

pital at Berlin; the others were physicians using radio-active substances or employees in industrial establishments where they were produced. The disturbances were in the form of changes in the blood picture and impairment of the genital glands, lassitude, drowsiness, headache, attacks of vertigo, slight syncope, etc. In two cases the menses were retarded. Lymphocytosis was marked in all while the neutrophils dropped off. Characteristic changes also developed in the skin, paresthesia and loss of finer sensitiveness in the fingers, pain on grasping articles, and in the severe cases spontaneous and sometimes very severe pains in the fingers. The skin grows smooth and leathery, horny deposits develop around the nails, the fingers do not sweat and the nails tear at the tip and become deformed. To date none of these changes is serious, but the experience with Roentgen-ray burns warns of the necessity of caution. The radium and radio-active substances should be handled only with long tongs or forceps, never letting the fingers touch them. The specimens should be mounted with a rubber handle whenever possible. Work-rooms should be thoroughly ventilated to get rid of the emanations, and the work-table should be covered with metal to protect the worker's body. The workmen should be changed about often so that the hours at such work should be short and alternate with other work. Those working on radio-active substances should be under repeated medical supervision and have their blood examined at least twice a year.

93. **Pernicious Anemia in Pregnancy.**—Wolff states that he has been able to find on record only twenty cases of pernicious anemia developing during pregnancy in all Germany since 1872. He recently encountered a case of the kind in a previously healthy woman of 22. The pernicious anemia came on during the second half of her first pregnancy and after delivery spontaneously retrogressed to a considerable extent. In fifteen of the cases on record the pregnancy was interrupted, hoping thus to arrest the pernicious anemia, but twelve of these women died. Transfusion of blood has rendered good service in a number of cases, and there is always hope that the anemia may subside after spontaneous delivery so that expectant treatment seems the best under the circumstances as a rule. In eleven cases the children were alive at last accounts.

### Medizinische Klinik, Berlin

*March 29, X, No. 13, pp. 529-572 and Supplement*

98 *Slow Endocarditis. (Endocarditis lenta.) E. Stadler.
99 Lead-Poisoning from Water-Pipes. (Bleivergiftungen durch Wasserleitungen.) H. Klut.
100 Pregnancy Serous Meningitis. (Eine durch die Schwangerschaft bedingte schwere Hirnerkrankung.) G. L. Dreyfus and M. Traugott.
101 *Treatment of Peritoneal Adhesions. F. Kirchberg.
102 The Electric Pocket Lamp in Diagnosis of Frontal Sinusitis. A. v. Sarbo.
103 Syndrome Resembling Unilateral Paralysis Agitans. G. Mingazzini.
104 Topography of Brain and Skull. (Der fehlende Ausgleich der Schädelmasse bei anatomisch bedingten Funktionsstörungen des Gehirns.) L. Wolfer.
105 Bronchial Disease in Children. L. Jehle.

98. **Protracted Endocarditis.**—Stadler remarks that this disease always terminates fatally notwithstanding its comparatively mild course. The only hope seems to be in attacking it early with both serum and vaccine. Grip, tonsillitis or bronchitis is generally the precursor, a miscarriage or difficult delivery. Slight pains in the joints and general depression are the first symptoms, and the rapid enlargement of the spleen suggests impending trouble. In the case described in detail eight months elapsed between the first symptoms and death. The *Streptococcus viridans* was cultivated from the blood during life. The clinical picture varies from day to day, now high fever with lung and brain symptoms and again nothing but splenomegaly and anemia, but always signs of an old valvular defect. The patients with endocarditis lenta are generally distinguished further by extreme optimism, like the euphoria of consumptives, which renders the physician's task much easier.

101. **Suction-Pressure Treatment of Peritoneal Adhesions.**—Kirchberg reports good results in breaking up adhesions, inducing local hyperemia, etc., in the abdomen by alternately aspirating a certain area into a big vacuum bell and then applying pressure with compressed air. He gives illustrations showing how the viscera can thus be drawn about, lifted up and down, the circulation and peristalsis stimulated and promoted, adhesions diagnosed and broken up, even flat adhesions over a considerable area. His glass bell is worked in connection with a tank of oxygen or compressed air, and it is proving exceptionally effectual also in lumbago, the patient lying prone. He has found it best to cover the entire abdomen at first with a big glass, and follow with a smaller bell for the special area in question.

### Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

*March, XXXIX, No. 3, pp. 269-458*

106 Negative Effect of Gynecologic Treatment in Psychiatry. E. Siemerling.
107 *Effect of Radium and Mesothorium Treatment of Carcinoma of Uterine Cervix. W. Lahm.
108 Causal Treatment of Uterine Hemorrhage. G. Schickele.
109 Intravenous Injection of Arthigon in Gonorrhea in Women. S. Moos.
110 Case of Congenital Opening of the Anus into the Urethra. P. Kreiss.

107. **Effect of Radium and Mesothorium Treatment on Carcinoma of the Cervix.**—Lahm gives a detailed histologic description of the tissue of a carcinoma of the cervix treated by irradiation, and concludes from it that the effect of radium and mesothorium on such tumors is indirect. Increased numbers of leukocytes are brought to the part and they destroy the cancer cells by phagocytosis. There are cholin and lecithin combinations in the cancer cells which attract the action of the leukocytes and antiferments in the normal body cells which protect them. As the cancer cells are digested by the proteolytic ferments in the leukocytes, they are carried into the blood-stream and gradually bring about immunization by autovaccination.

### Münchener medizinische Wochenschrift

*March 24, LXI, No. 12, pp. 633-688*

111 *The Importance to Science of the Paranoiac Wagner. R. Gaupp.
112 Diagnosis of Paranoiac States. T. Becker.
113 *Roentgenoscopic Diagnosis of Type of Pulmonary Tuberculosis in* Children. (Anatomische Typen der kindlichen Lungentuberkulose.) E. Rach.
114 Pathology of Trichinosis. G. B. Gruber.
115 *Fever in Infants after Saline Infusion. Rietschel, Heidenhain and Ewers.
116 *Hydraulic Method for Artificial Separation of the Placenta. J. A. Gabaston.
117 Potent Elements in Antigens for the Wassermann Reaction. W. Klein and E. Fränkel.
118 Case of Atypical Tubercle Bacilli. V. F. Moller.
119 Operative Treatment of Severest Forms of Flat-Foot: Severing Ligaments Alone May Suffice. (Plattfuss.) F. Berndt.
120 Impalement Injuries; Eleven Cases. (Pfählungsverletzungen.) K. Lexer.
121 Mechanism of the Absorption of the Lens in the Eye. (Abbau und Resorption der Linse und ihrer Abbauprodukte.) M. Goldschmidt.
122 Case of Retinal Hemorrhages after Calomel-Salvarsan Treatment. (Netzhautblutungen nach Kalomel-Salvarsanbehandlung.) F. Morpurgo.
123 *Boas' Extra-Anal Treatment of Hemorrhoids. Müller.
124 Nomenclature for Radiotherapy and Dosage. (Zur Massbezeichnung der Strahlendosis bei der Radium- und Mesothoriumtherapie.) G. Klein.

111. **Psychology of the Wagner Case.**—The scholarly, kindly, highly esteemed and happily married principal of a school in Germany shocked the world last September by cutting the throats of his wife and four children, then hurrying to a town where he had formerly lived, setting fire to it in four different quarters and shooting down the people as they ran out of the houses. He thus had killed thirteen persons and seriously injured twelve others and two cows before he was overpowered. The assumption of acute mania was disproved by his diary which showed that the paranoiac brain had planned this series of events years before and kept it constantly in mind and carried it out in every detail except that it did not reach its planned conclusion which was the burning of still another village and his own final suicide.

The diary is a unique psychiatric document as it mirrors the workings of a paranoiac brain over a period of twelve years, portrayed by a fluent and scholarly writer. The very inception of the paranoia can be traced and the preponderant influence of emotions. The pathologic element is the intensity and the permanence of the special emotions, not the cause of the emotions.

115. **Fever after Saline Infusion in Infants.**—Evidence is here presented that traces of copper from the vessels in which the water is distilled are responsible for the rise in temperature sometimes observed after injection of salt solution in infants.

116. **Injection of Fluid into the Placenta to Aid in Its Separation.**—Gabaston injects physiologic salt solution through the umbilical vein into the placenta when it is not spontaneously cast off. Study of the way it works on an expelled placenta shows that the fluid distends the big vessels and the placenta straightens up and spreads out; finally the delicate vessels at the rear burst and the injected fluid pours out of the uterine aspect of the placenta. With the placenta still clinging to the uterus wall, accumulation of fluid behind must gently pry it apart from the wall, while the size of the placenta thus in erection, as it were, stimulates the motor function of the uterus. The fluid seeking to escape from the uterus will help in the expulsion of the afterbirth. The procedure, he says, proved harmless and ideally effectual in the one case in which he has had occasion to apply the method to date. He injected under pressure from a rubber bulb 2 liters of warm salt solution into the placenta when the uterus of a primipara had shown total atony for an hour and a half. The olive tip of the cannula was tied in the vein. In seven minutes a vigorous contraction of the uterus was apparent, soon followed by others and in twelve more minutes the afterbirth was expelled intact.

123. **Extra-Anal Treatment of Hemorrhoids.**—Müller writes to express his gratitude for the way in which he cured himself of severe hemorrhoids by following Boas' instructions to the letter for the extra-anal treatment. (It was described in The Journal, 1912, lviii, p. 742.) The principle seems to contradict all that has been taught in regard to treatment of hemorrhoids, but what matters theory? The one essential is that the patient is cured.

### Wiener klinische Wochenschrift, Vienna

*March 12, XXVII, No. 11, pp. 261-288*

125 *Edema and Hemorrhages from Poisons; Toxins of Intestinal Origin. L. Hess and H. Müller.
126 *The Tuberculin Contrast Phenomenon. W. Egert.
127 Paralysis Agitans in Man of 38. G. Stiefler.
128 Serodiagnosis of Cancer and Helminthiasis. (Die Abderhaldensche Fermentreaktion bei Karzinom.) G. M. Fasiani. (Abderhaldensches Dialysierverfahren bei Helminthiasis.) E. Manoiloff.
129 Torsion of Uterus from Myoma with Supravaginal Auto-Amputation. L. Ruppert.

*March 19, No. 12, pp. 289-308*

130 Chemistry and Toxicology of Dysentery Toxin. P. Kirschbaum and S. Fränkel.
131 *Regeneration of Long Bone from Bone Implant. (Zur Knochentransplantation im Defekte von Röhrenknochen.) Korencan.
132 Operative Treatment of Pancreas Cysts. V. Roic.
133 Acute Tuberculosis without Tuberculous Focus. (Zur Typhobazillose Landouzys.) A. Krokiewicz.
134 Statistics in Regard to the Profession in Austria. (Aerzte in Oesterreich, Ende 1913.) O. Klauber.

*March 26, No. 13, pp. 309-356*

135 Tonic Innervation. A. von Tschermak.
136 New Light on Kidney Diseases. (Zur Klinik der Nierenerkrankungen im Lichte der neuen funktionellen Prüfungsmethoden.) R. Bachrach and R. Löwy.
137 Technic for Wassermann Reaction. (Wasserfehler.) R. Matzenauer and M. Hesse.
138 Determination of Residual Nitrogen in the Blood. (Verleichende Bestimmungen des Retentionstickstoffes im Blute nach Yvon u. nach Kjeldahl.) R. Hertz.
139 Heart on the Right Side. (Dextroversio cordis.) J. H. Botteri.
140 Weight of the New-Born in Relation to Mother's Circumstances. S. Peller.
141 Overcrowding in the Medical Schools. (Einschränkung des Zudranges zum Studium der Medizin.) Hochenegg.

125. **Toxic Anemia.**—In this third communication on anemia due to the action of poisons, Hess and Müller describe extensive research on rats by intravenous injection of various aromatic and other substances. The most striking result was obtained with phenyl-oxyphenylamin or imidazolethylamin. Injections of these substances induced anemia of the pernicious type. They accept this as evidence that the intestinal mucosa under the influence of the bases formed in it under certain circumstances, belongs among the blood-destroying organs. Pyrodin and toluylendiamin injured the capillaries to such an extent that pronounced edema resulted. The amins caused both edema and hemorrhages, while the substances like putrescin, derived from the body, induced severe anemia.

126. **The Tuberculin Contrast Phenomenon.**—Egert calls attention to the difference between the local reaction at the point where Pirquet's skin test is applied and at the point where the subcutaneous injection is made. With active tuberculosis in younger children the skin reaction is pronounced while there is scarcely any reaction at the point of the subcutaneous injection. But as the child recovers, the findings become reversed; the subcutaneous local reaction becoming marked while the skin reaction is minimal. This may help in the prognosis; at present he does not know how to interpret this "contrast phenomenon."

131. **Regeneration of Long Bone.**—In Korencan's case a piece of the femur, 11.2 cm. long, had to be resected on account of periosteal sarcoma on a boy of 9. The shaft was cut away leaving merely a strip of periosteum 2 cm. wide on the sound side of the bone. A corresponding piece of the boy's fibula with its periosteum was implanted in the gap, but fistulas developed and the necrotic implant had to be taken out. Its periosteum was evidently left in place, and bone tissue proliferated so rapidly that in the course of a few months the boy was using his leg normally and freely. Four years later the femur presents an approximately normal structure and shape except that it is bent somewhat. There even seems to be a marrow cavity.

### Zeitschrift für Geburtshülfe und Gynäkologie, Stuttgart

*LXXV, No. 3, pp. 493-820. Last indexed February 14, p. 580*

142 The Electrometrogram of Animals. E. Blumenfeldt and A. Dahlmann.
143 *Alcohol Alone Possesses the Property of Seeping Deep into the Skin. (Der Kernpunkt in der Frage von der Bedeutung des Alkohols bei der Handedesinfektion.) F. Ahfeld.
144 *The Hydrorrhea Question. T. H. van de Velde.
145 *Bacteriologic Findings in 200 Cases of Post-Partum Fever. P. Werner and J. v. Zubrzycki.
146 *Recent Reexamination after Extraperitoneal and Transperitoneal Cesarean Section. W. Rohrbach.
147 Etiology of Endogenous Puerperal Infection. S. Seligmann.
148 Sarcoma of Uterine Cervix. (Zur Kenntnis der heterologen mesodermalen Neubildungen des Gebärmutterhalses.) W. Beckmann.
149 *Puncture as Curative Measure in Gynecology. (Probepunktion als Heilmittel.) N. M. Kakuschkin.
150 Histogenesis of Ovarian Cystoma. (Sogen. Struma ovarii.) E. Bauer.
151 Action of Extracts of Thyroid, Ovary and Placenta on Isolated Rabbit Uterus. J. Fuchs.
152 *Myomas of Uterine Cervix and Technic for Removal. G. Schickele.
153 Physiology and Technic for First Breast-Feeding. H. Rietschel.
154 Intervals between Feeding the Newly Born. (Zahl der Mahlzeiten beim Neugeborenen.) R. T. Jaschke.

143. **Alcohol in Sterilization of the Hands.**—Ahlfeld reaffirms that alcohol owes its unique efficacy in local sterilization to its power of penetrating deep into the tissues and thus being able to destroy the superficial and the deep germs. Others admit this deep diffusion but think there is no bacteridal action unless the alcohol carries some disinfectant with it.

144. **Hydrorrhea.**—Van de Velde distinguishes between leakage from the fetal membranes and flow of fluid from the gravid uterus elsewhere. His experiments with intramuscular injection of methylene-blue confirmed this distinction.

145. **Bacteriology of Puerperal Fever.**—In the 200 cases examined a number of different germs were found but none seemed to induce a special syndrome. Consequently bacteriologic examination is of little practical value in general except when an operation is contemplated. Then the discovery that the blood is swarming with germs renders the outlook less favorable. Veit takes this as his guide; if he finds quantities of bacteria in the blood on repeated examination, independent of rises in temperature or chills, he regards the bacteria as too virulent to permit recovery from the sepsis. On the other hand, if the blood is sterile

or only isolated germs are found in the blood during a chill, he unconditionally advocates an operation.

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# THE MEDICAL DEPARTMENT IN THE CIVIL WAR *

S. WEIR MITCHELL, M.D.†
PHILADELPHIA

I propose to deal briefly with the place our great profession held morally and technically in the war of the sixties. It is a record to be proud of, or I should not so willingly revert to it. If you look for that story in the histories, they are silent; if you search for it in the countless autobiographies of soldiers great or small, these too are mute except as to what the soldier did. A few forgotten books by surgeons are personal or technical, and tell us little more than the baldest story of the individual. What else there is may be found scattered through the huge volumes on the medical history of the war. We gain nowhere a sense of the immensity of the task which as a profession we dealt with. We hear little or nothing of the unequaled capacity with which we met the call on energy and intelligence, or of the extraordinary power of the trained American to deal with the unusual. Of course, as individuals, we took our sides North or South, but the attitude of the profession as a whole was peculiar, and to deal with it properly involves some brief preconsideration of the national feeling in regard to an unbroken Union.

One of the privileges of age is the ownership of a library of personal memories. Time occasionally borrows them as material books are borrowed, and does not return them; but enough are left to enable me to take down half-forgotten volumes from the shelves of remembrance and with their aid talk to you—even gossip for you—concerning the share we took in what some of us old fellows who are still unreconstructed call the "War of the Rebellion." Indeed, it is technically so named in our war histories; but to forget a little were wise and kindly considerate. Mr. Lincoln once reproved a general for calling the soldiers of the South *Rebels*. He said, "Labels, General, do a lot of harm, and hurt people; call them *Confederates*." These labels still have their sting!

The struggle of the sixties was in fact a civil war. The seeds of discord were sown long years before the day when Washington wrote, "I wish that the officers of the army from Connecticut or Virginia would forget they came from separate states and remember only that they are Americans." No radical differences of opinion *within* a country were ever settled without the stern surgery of the sword—arbitration will never here be of any use. The war of the sixties was historically inevitable.

When on April 12, 1861, we heard that the flag had been fired on at Fort Sumter, a universal sense of insult roused the North. The churches North and South fell apart and the pulpit knew no more the charity which covers a multitude of sins. Even the old patriotic society of the "Cincinnati" lost its unity. Officers of the army and navy made their choice with which section they would stand, and it may be strange to you to learn the little-known fact that of West Point Southern graduates nearly 50 per cent. remained loyal to the flag as men of the North read loyalty, at what cost of family affection lost and of broken friendships you can easily imagine. It was very long after the war before these wounds were healed and innumerable family differences passed away. Alas, in some cases sectional hatreds were carried unsettled to another world than ours.

Not without reason have I made this digression. The ancient guild of physicians alone remained an unbroken organization—the offspring of Science and Charity, faithful to a creed centuries old when Christ was born. In hospitals and on the field of battle, where the surgeon ruled, there was the truce of God; and Letterman, the able surgeon-in-chief of the Army of the Potomac, merely put conduct into words when he said, "The wounded man ceases to be an enemy." I despair of making you realize through statistics the vastness of our task. Large figures only bewilder the imagination and do not fully assist it to realize how perfect was our achievement through those years of disaster and final triumph,

> Which blazoned duty's stainless shield
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How were we prepared to meet the demands of war? The old medical department of the army consisted of thirty surgeons and eighty-three assistants. Of these, twenty-four resigned to take part in the rebellion and three were dismissed for disloyalty; thirteen were natives of the South, but stood true to the flag. Soon after the beginning of the war it was found necessary, owing to age, to permit the surgeon-general to retire. Owing largely to pressure made by the Sanitary Commission and the profession, his place was filled by raising from the rank of assistant surgeon Dr. William A. Hammond. He fell at once into a tremendous business spreading over great spaces of country, increasing in perplexity, and making fresh demands every week, and at last so large that there was expended for ice alone in one year more than the whole amount of money which in peace sufficed for the entire medical service of the army. The organization also demanded complete revision, and, in fact, as the or only isolated germs are found in the blood during a chill, he unconditionally advocates an operation.

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* Address delivered before the Physicians' Club of Chicago, Feb. 25, 1913.

† As our readers of course remember, Dr. Mitchell died Jan. 4, 1914.

Whatever else may be thought or said of William A. Hammond, nothing is more sure to me than that he duly saw and used a great opportunity; that he served his country as few could have done; that he created the Army Medical Museum; that he saw the need for and advised the foundation of the Army Medical School; that he pointed out the men who were to direct the army museum and the medical library. Until the end of his army career he was the unfailing friend of scientific study, and created special hospitals for diseases of the heart, lungs, and neural maladies.

He had, however, defects of character which were increased by the applause which greeted the success of his radical measures to meet the demands of a war which ruined so many reputations. He was impulsive and self-confident. Thus, when he desired to deal with the excessive use of calomel by volunteer surgeons, he issued an order forbidding all use of calomel. He was, of course, disobeyed. Calomel was in those days a therapeutic saint to which when in doubt the average country doctor confidently appealed. When at last Hammond fell out with Stanton, the efficient and despotic secretary of war, he was tried by a court martial, broken, and, I think unjustly, removed from the army after a service of unequaled value. But this was late in the war—his work was well advanced and the successor's task easy.

### WAR HOSPITALS

How we dealt with the demands of this war I am to endeavor to tell you, and first I wish to talk about the hospitals of the war to which the graver cases of wound or disease came soon or late from battlefield and camp. Early in this contest, at a loss, we seized on churches, factories, barns, even large private houses, as homes for the wounded. These soon proved insufficient. The earliest substitute was built at Parksburg, Virginia, by Surgeon Dunster, under Letterman's order, and consisted merely of closed sheds with open ridge ventilation. Then deserted barracks were used, and very soon we built those immense pavilion-hospitals near the great cities, some of which were, I believe, planned originally and built by John S. Billings. that man of many competencies. I think that his original idea was to erect one-story wooden pavilion wards of sixty beds radiating from central administration offices. There were other interesting plans, but all, I think, grouped the pavilions around a central building. These hospitals each held from one thousand to six thousand patients, and you may gather some idea of our task when I tell you that by and by they sheltered thirty thousand beds in and around Washington, and that near Philadelphia we had twenty-six thousand, about twenty thousand of these being in neatly constructed pavilion-ward hospitals.

By degrees the service in these immense temporary homes of the sick became admirable, and the American physician, quick to learn, profited by their vast clinical opportunities. When finally at times they became too small for the care of abrupt additions from remote battles, we pitched tents around them holding eight or ten cots, and quickly learned a new lesson, for it was found that patients with wounds and fevers did far better in these tents than in our best wards. The hint was readily taken, and elsewhere there arose hospitals composed of nothing but tents, large or small, sheltering in one instance fifteen hundred inmates.

You have rediscovered lately what in those days we knew perfectly well, that even pneumonia and bronchitis did best in tents no matter how bad the weather. My own little paper on "Camp Cure" dates from 1872. I believe now that a tent-hospital without permanent wards is a thing of the near future and will be quite well worth trial for small communities and as an addition to larger permanent hospitals. If I were required to erect a small hospital near a country town in a temperate climate, I should try this very rational experiment. It should have electric underground wires and the best drainage—all laid as if for a built hospital, and over this should be placed well-floored tents.

There were things seen in the surgical wards which you will, I trust, never see, or only in jars in the surgeon-general's museum. A slight flesh-wound began to show a gray edge of slough, and within two hours we saw this widening at the rate of half an inch an hour, and deepening, until in some horrible cases arteries and nerves were left bare across a devastated region. You will never see it. It was what we called "hospital gangrene." Instant removal to the open air of tents, etherization, savage cautery with pure nitric acid or bromin, and dressings of powdered charcoal enabled us to deal with these cases more or less well, but the mortality was hideous—at least 45 per cent.

I am not here to lecture fully on the medicine of war, but I cannot help recalling to your attention another scourge—erysipelas. This moved with strange rapidity from bed to bed in the ward, generally following the direction of the wind as it blew through the room. It was rare—very rare—in the great tent-hospitals, and was a formidable malady.

In isolated armies, as at Chattanooga, scurvy was another enemy, and a sad addition to the gravity of wounds.

The question of housing the wounded near the battle-lines also very early contributed its lesson. It was found that the injured men did badly in houses, better in barns, and best of all in tents. At the close of the war. or rather in January, 1865, there were in all 201 general hospitals. No matter how remote they were, these were subject to frequent ruthless inspections, when a trained man unexpectedly appeared at midnight or in the day, spent twenty-four hours in seeing everything in the hospital, and then with praise or blame sent to the surgeon-general reports which spared no one high or low.

I am perfectly satisfied that even the best of our city hospitals would be the better for these sudden inspections by watchful physicians, not of the staff or by ignorant lay managers. Such inspections should fulfil all the exactions of Dr. Billings' admirable little handbook of hospital management. I saw the experiment tried in Philadelphia in a great hospital. It was not very much liked. but to the bewilderment of a previously well-satisfied board of clergymen, it brought before them nine pages of humiliating revelations as results of an unexpected visit.

The detail of the management of these immense establishments soon became a marvel of efficiency, and I should like to linger over a story which I must abbreviate. The ration was so liberal that money saved from it was set aside to be used for luxuries for the patients. There were also other additions to this fund, which became in some of the hospitals very large. Flour-barrels, bones and fat were eagerly bought. All the coffee-grounds were carefully kept and sold to the highest bidder. These were mixed with browned buckwheat or rye, or better than all with sweet potatoes, and then ground up and sold for coffee. A great many persons did not taste coffee except in this shape for two or three years of the war. Tea-leaves once used were also sold and greedily bought up. How they were served out anew to the public I have never been told. But above all the other available waste material in value were egg-shells. If you will reflect on this, you will understand that egg-shells are never saved up anywhere by households, and so, when you had the egg-shells of six thousand persons carefully treasured, there was eager bidding for them. The fact is that the egg-shell is a very pure form of carbonate of lime, and when it is calcined and ground up, it constitutes the base of all the finest face-powders which the ladies, I believe, still employ. There were also other sources of profit. The swill-barrel contents, which brought high prices, were promptly converted into pigs.

I ought to add that at the close of the war there were about $80,000 of those unused funds turned in from the hospitals. The surgeon-general was allowed to use this money as a basis for the great library of medicine in Washington.

The war poured into these wonderful camps of the sick and wounded a continued flow of damaged humanity—sometimes more rarely the ghastly product of a single battle. Out of our gates went the dead and the men sent home to die or to profit by the journey, for again we learned to our surprise that the travel homeward was a tonic of power, and that typhoid patients might be transferred long distances without harm, and indeed with good results.

Of the special hospitals created by the surgeon-general, I shall speak later, and in these I hope presently to interest you.

In 1861 there were already in the army 2,109 regimental surgeons, 3,652 assistant surgeons, and in the hospitals scattered through the country 5,500 acting assistant surgeons. By degrees things took shape, and when General Grant crossed the Rapidan, the medical corps had become a body of well-trained men who had been well lessoned in the terrible school of war, it is to be feared at some cost to many wounded men. To meet the needs of field and hospital service, Surgeon-General Hammond created the grade of brigade-surgeon, and by using acting-assistant-surgeons in the city hospitals released younger men for active use in the field. These acting-assistant-surgeons included men of high class, such as Drs. DaCosta, Agnew, Morton, Stillé and Keen in Philadelphia, and many of the best in your own and other of our great cities. A third creation to meet our needs was that of the medical cadets, young men of character who had had two years' education in medicine. Of these were men like Curtis, Collins, Warren and Tyson. My brother Edward was of these cadets. He died of diphtheria in the Douglas Hospital—a young life of great promise, one of four brothers in army service.

### FIELD SERVICE

The organization of the army in the field under Surgeon Letterman and such competent brigade-surgeons as John Brinton and William Thomson may perhaps interest you. Every regiment had one assistant-surgeon, who gave immediate care to the wounded in action, choosing some presumably safe place for his ambulance and orderlies, with their knapsacks of dressings, etc. When, as sometimes happened, the chosen place came under fire, the surgeon moved farther away. Dr. John S. Billings thus operated under fire back of Round Top at Gettysburg, and at his next move had again to retire under a rain of bullets. In some cases retirement was not possible, and many surgeons did at times operate for hours while occasional bullets were flying over them. In one case known to me a man on the operating-table was killed by a bullet while his wounds were being dressed. It was a noble test, of course—none, I think, could be greater. The assistant-surgeon very often preferred to go with the stretcher-bearers nearer the firing-line. The drift of injured men to the ambulance station and past them again to the more remote field-hospital tents during an action was often hard to handle, and at times became overwhelming. When defeat, as at Antietam and Gettysburg, left the wounded of both armies to be cared for by the victor, then indeed the 600 surgeons of the Army of the Potomac were too few and surgeons were hastily summoned from the cities. The three days' fight in and near Gettysburg left of wounded, Union and Confederates, 27,000 men. All were cared for, their wounds dressed and they were under shelter early on the fourth of July, twenty-four hours after the close of the three days' battle. For contrast, I may say that it was ten days after the battle of Waterloo before all the wounded had been cared for.

When the Confederates opened on our line at 1 o'clock, July 3, with 150 guns, the difficulty of finding safe shelter was sadly illustrated, since the shells fell, some of them, in hospital tents half a mile back of our line, and one into an ambulance loaded with wounded.

The tactics of sanitation were at their best in the Wilderness campaign remote from towns. There 8,300 wounded men were cared for in two days.

By the way, one hears in novels and sometimes in history of bayonet charges—of the cold steel. I never saw a bayonet wound, and of 25,000 wounds in Grant's battles, including the hand-to-hand struggle of the Bloody Angle, there were in all fourteen bayonet wounds; there were probably as many men severely kicked by mules!

Regiments took into the field and hospital service many physicians who had no experience in grave cases demanding capital operations. As a consequence, there was for a time much bad surgery, and the competent were overworked. The day of aseptic surgery, so securely perfect as to tempt the most timid operator, was far away in time. The condition of the soldier and the contrast between what you have in your leisurely operations explains our appalling mortality. Twenty-eight per cent. of amputations resulted in death; of the trephined, sixty-one of every hundred died. We groped for bullets with roughed porcelain-tipped probes, the mark of lead on the probe recording the locality of the ball.

These surgeons appeal to me as unrecorded heroes. I have known of men who dressed wounds and did the gravest operations until they fainted beside the operating-table or fell asleep to find in an hour of slumber strength to go on with their work.[1] In camp and in battle these noncombatants paid their share of the debt of duty. At Gettysburg thirteen were killed or wounded. During the whole war fifty-one were killed outright or mortally wounded, four died in prison, and 281 of disease incident to active service. I deeply regret that we have no such statement in regard to the Confederate surgeon, who did on his part the same noble duty far less well supplied with the means of helpfulness.

I look back on my memories of hospital nurses during the war with very mingled feelings. Our nursing orderlies became rapidly efficient as we trained men to the less exacting nurse duties of that day. Very soon the question of women nurses arose. There were women like the Schuylers, the Lowells and Miss Wormly, of whom I think with grateful remembrance. When we were in the neighborhood of great towns we had many volunteer women nurses. Some were terribly earnest, utterly ignorant and quite incapable of discipline. Others, if more efficient, were not punctual and came and went as they pleased. A large proportion were early credited in the papers for patriotic services, and were seeking that notoriety which is the motive force of so many of the aspirations—and shall I say of the exasperations?—of our own unrestful days.

Our best women nurses were the too limited number of Roman Catholic sisters. Their value for male patients was at its best in proportion to their being refined ladies of a caste to which few of the Roman Catholic sisters belonged. I observed that good-looking, well-bred, low-voiced women exercised a wonderfully great control over our soldiers—a very American tribute with a physiologic basis.

Early in the war all captured surgeons and a detail of those who stayed with their wounded were released, but in some cases there was needless detention or retaliation, as when the Confederate cavalry officer, General Forest, held surgeons as prisoners, whereupon Grant refused to parole the surgeons taken at Vicksburg. All of the eighty Confederates who were left with their wounded at Gettysburg were promptly sent home as soon as we could dispense with their services. Some time in 1865 a general order set free all surgeons captured. It was very irregular, however, and when in September of that year I inspected Fort Delaware, there were about thirty surgeons held with other officers and confined in the casemates on account of a plot to capture the island. These gentlemen complained bitterly of their detention, and of the mosquitoes, which did not regard them as non-combatants. All other prisoners were at large on the island, were well fed, and allowed to bathe daily in the river. The mortality was, however, something frightful, and the men were dying at the rate of eight or ten a day when I visited the island. I saw in this case an explanation of the fact that the mortality of our prisoners very nearly equaled that in the terrible Confederate prison pens of the South, for a large proportion of the men I saw came into our hands diseased and suffering from insufficient diet, malaria or acute dysentery, and hence the mortality was very great. However that may be, at least in Fort Delaware I was able to report favorably as to food, water and everything else, except as to clothing. It was becoming cool in September, and these men were very lightly clad to meet a winter. My report puzzled the Department of War. Finally, as I learned later, an ingenious quartermaster suggested that the old clothing at the Schuylkill Arsenal be sent down to the island. On this, thousands of garments—musicians' and others—dating back to the War of 1812 and later, were drawn out of the stores of the arsenal and sent down to Fort Delaware. Our Confederate friends decided not to put on the grand uniform with the high collar and swallow-tailed coat of the U. S. musician of 1812. As the fall matured, however, the cold weather became singularly persuasive, and what with cutting off U. S. buttons and docking coat-tails they finally succeeded in clothing themselves; but I was told that for a time it was as good as a fancy ball.

### PERSONAL EXPERIENCES

I have now to apologize for speaking rather more about myself than I have already done. Toward the close of the war [illegible] 'ed what was called a "stump [illegible] for all men who had lost a leg or arm. Why is there no technical name in Latin for the stump? These men came, as an old sergeant said, "got limbed," and were replaced by others. Usually there were from three to four hundred in this hospital. This chance was seized on at once with avidity, and the disorders of stumps studied and found extremely interesting. Especially so was the psychology of lost limbs—what I called "phantom limbs," a tempting subject. William James made a similar study far later, but confessed frankly that he could add nothing to my paper. It was a fascinating research, but the effect on the whole body of the absence of two, and in some cases of three members, is still open to physiologic inquiry.

I never can resist telling a story. While this subject was occupying my mind, a friend came in one evening and in our talk said, "How much of a man would have to be lost in order that he should lose any portion of his sense of individuality?" This odd remark haunted me, and after he left I sat up most of the night manufacturing my first story, "The Case of George Dedlow," related by himself. In this tale my man had lost all four limbs. I left this tale in the hands of a delightful lady, now long dead, the sister of Horace Howard Furness. Then I forgot it. Dr. Furness, her father, much amused, sent it to Mr. Hale, editor of the *Atlantic Monthly*. To my surprise, I received about three months afterward a proof and a welcome check for $85—my first literary earnings and certainly not a contribution on my part, because I had nothing to do with the disposal of the paper and had not authorized its being put into print. This story has had a dreadful number of successors—the product of my lengthening summer leisure. Some of you may have read them to your cost. The unfortunate George Dedlow's sad account of himself proved so convincing that people raised money to help him and visited the Stump Hospital to see him. If I may judge it by one of its effects, George Dedlow must have seemed very real. At the close of my story, he—a limbless torso—is carried to a spiritualist meeting, where the spirits call up his lost legs and he capers about for a glorious minute. The spiritualist journals seized on this as a new proof of the verity of their belief. Imagine that!

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[1] William Norris I remember told me of being at work for thirty-six hours continuously.

My service in hospitals began in the Old Armory Building, Sixteenth and Filbert streets, long since swept away. It may amuse you to know that the only account of that hospital is to be found in my first novel, "In War Time," written many years later. I began here to take interest in nervous disease, which so pleased the surgeon-general that finally, after some changes, a hospital for neural disorders was created at Turner's Lane, near Philadelphia, in August, 1862, and pavilions were built for four hundred men. One was assigned to Dr. DaCosta, and afforded him a chance for a study of exhausted hearts and for other valuable papers. Surgeon Alden of the regulars was in charge. Drs. Morehouse and W. W. Keen assisted me, and we were relieved by special order of the time-killing red tape of hospital business. Dr. Keen lived in the hospital. Morehouse and I at that time were in large general practice, on which we depended. A morning visit to the hospital about 7 o'clock disposed of the general routine, and late in the afternoon we came back and several nights of each week worked at note-taking often as late as 12 or 1 o'clock, and when we got through walked home a couple of miles talking over our cases. We three did all the work in person. There were no stenographers or any such help, and sometimes the inflow of cases of injuries after a serious battle tasked us sorely. I have worked with many men since, but never with any who took more delight in repaying opportunity by labor. The opportunity was indeed unique, and we knew it.

The cases were of amazing interest. Here at one time were eighty epileptics, every kind of nerve-wound, palsies, singular choreas, and stump disorders. I sometimes wonder how we stood it. If urgent calls took us back into town, we returned to the hospital as if drawn by a magnet. In fact, it was exciting in its constancy of novel interest. Thousands of pages of notes were taken. There were many operations, many consultations, and toward the close we planned the ultimate essays which were to record our work. Each of us took his share, but all three were mentioned on the title pages of our essays. There was a small book on nerve-injuries and an essay on reflex palsies, both of which I wrote. Dr. Keen contributed an admirable paper on malingering. I have, alas! to record here what was to us an immense calamity. Our notes of epilepsy were very full, and there were things recorded which I have never seen since or seen but once, which are worth a moment's pause to mention. In certain cases of epileptic status, and sometimes in others, we could bring on an epileptic attack by pressure on the upper subclavicular thoracic region or by pinching the skin in that locality. Now you will please to remember that this was exactly what Brown-Séquard found in guinea-pigs suffering from artificially induced epilepsy. Our notes and conclusions in cases of acute exhaustion and extreme myasthenic conditions would have entirely anticipated the delineation of those disorders which we now accept under the name of neurasthenia. Unfortunately the recording of these states fell to Dr. Morehouse, who delayed writing about them until an unfortunate fire in his library entirely destroyed these priceless records. To this day I cannot think of it without regret.

In this hospital, massage was used to restore action to limbs in which healing nerve-wounds left the muscles palsied, or for the rigidity of splinted cases.

Among the numerous other matters on which I may not linger were the influence of nerve-lesions on nutrition and temperature, the first record of wounds of the sympathetic nerve, and the study of reflex palsies. The victims of nerve-wounds were often men worn out from fever, dysentery and long marches; hence some of the symptoms of nerve-wounds we described have never been seen since in like intensity. The statements in regard to causalgia—burning neuralgia—were received in England with critical doubt. That hospital was, as one poor fellow said, a hell of pain. In one year over forty thousand injections of morphin were used. Time lacks here to redescribe cases of neuralgia of such intensity that the pain was increased by the vibrations of a band of music, by the rustle of dry paper handled, and by a loud footfall in the ward. I have seen men pour water into their boots to lessen the vibration which the friction of walking caused. I have never encountered such cases since, nor shall we again until we see diseased men the victims of wounds.

I permit myself to say that a few years ago Dr. John K. Mitchell reexamined all the survivors of nerve-wounds whose cases we had detailed in our papers who could be found. This difficult task added a valuable chapter to our knowledge of nerve injuries.

It became the custom to turn over to us the cases suspected of malingering. These were the scamps or cowards, and in some cases the victims of a strange form of psychic disorder. I could interest you long by our devices to trap these fellows, commonly by the use of an anesthetic.

Cases of nostalgia, homesickness, were serious additions to the peril of wounds and disease, and a disorder we rarely see nowadays. I regret that no careful study was made of what was in some instances an interesting psychic malady, making men hysteric and incurable except by discharge. To-day, aided by German perplexities, we would ask the victim a hundred and twenty-one questions, consult their subconscious mind and their dreams, as to why they wanted to go home and do no better than let them go as hopeless.

In June, 1865, our work came to an end. The new surgeon-general ordered that all our notes should be at once turned over to the department. As the cases yet unused by us were of value to us alone, we were much troubled. At once we copied or had copied this whole mass of records, and within a month or more turned over to the surgeon-general's office the original case-books, with the exception of those unfortunately lost when in Dr. Morehouse's possession. Long afterward Dr. DaCosta lamented to me that he had obeyed the order, and somewhere pigeonholed are many of the valuable observations of that brilliant student of disease. We were told then that we had been insubordinate, but I remained pleased that for once in my life as an army surgeon I had disobeyed my superior.

### NON-RECOGNITION OF THE SURGEON

I have detained you far too long, and come to a close with a sense of having failed to tell you fitly this story of eminent achievement. We had served faithfully as great a cause as earth has known; we had built novel hospitals, organized such an ambulance service as had never before been seen, contributed numberless essays on disease and wounds, and passed again into private life the unremembered, unrewarded servants of duty. How far it taxed the average professional man of the cities—your city and mine—may be judged from the fact that in 1864 the living Fellows of the College of Physicians of Philadelphia were 174. Of these, 130 had been connected in one way or another with the service of the army or navy during the four years of that bloody struggle—certainly a record of honor. What has been our reward? The great leaders in war have been promoted and universally honored. Countless statues commemorate in Washington and elsewhere the popular heroes. Statues of generals are in every town, some of them memorials of men it were wiser to forget, some of whom history will judge severely. Every village has its statue to the private soldier. There is not a state or national monument to a surgeon. At Gettysburg, every battery site is marked with a recording tablet; every general who fell, Union or Confederate, is remembered in bronze or marble; but what of the surgeon who died? Nothing!

It is a relief to know that I have of late induced the Gettysburg Commission to mark with a bronze shield the site of every corps hospital, with the names of the surgeons who served in each. Please to fully realize the fact that this will be absolutely the *first national* recognition of the physician in the war. The situations of the Confederate division hospitals have also been marked. You will share with me the pride and pleasure all this has given me.

Has any one ever heard of the medal of valor being given to a physician? And what of the young surgeons who volunteered to test the fever-bearing bite of the mosquito—more deadly than the fang of the rattlesnake! Shall we be proud that the Republic asks of us, expects from us, every service, and has for us no honoring recognition in life and no memorial marble for those of us who died on the field of honor?

What, indeed, shall we ask for the surgeon who on the Isthmus of Panama made possible that gigantic piece of engineering surgery which, cleaving a continent in twain, made of it two vast islands and wedded sea to sea?

Ah, when I think of the risks some of us have taken, the laboratory problems to be solved at daily personal peril. I am proud of the silence of our courage. Contrast with the thunder of the reputations made in our tiny Spanish War the tranquil, modest efficiency of that more deadly war which Reed and his officers conducted against yellow fever. I conclude that perhaps after all our way is the better. We wage no kindergarten wars!

Let me close with what very long ago I said in forgotten verse far better than I can say it in prose. I wrote of the Goddess of Medicine:

> Fair heritress of every human hope,
> Rich with the marvels of time's widening scope,
> However high may rise thy soaring wing,
> Whatever change thy fuller days may bring,
> Our ancient lesson will be ever new;
> That priceless lesson will be ever true;
> Time did not teach it; time will change it not;
> This, this shall last though all our lore's forgot,
> To give what none can measure, none can weigh,
> Simply to go where honor points the way;
> To face unquestioning the fever's breath,
> The hundred shadows of the vale of death;
> To bear Christ's message through the battle's rage,
> The yellow plague, the leper's island cage,
> And with our noblest "well to understand
> The poor man's call as only God's command."
> Ay, under every century's changing sky,
> Shall the Greek master's triple signal fly—
> Faith, honor, duty—duty calmly done,
> That shouts no self-praise o'er a victory won;
> One bugle note our only battle call,
> One single watchword, Duty—That is all.

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# PALLIATIVE EFFECT OF ARTIFICIAL PNEUMOTHORAX IN TREATMENT OF PULMONARY TUBERCULOSIS *

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SAN FRANCISCO

Artificial pneumothorax or lung compression has assumed its place as an important factor in pulmonary therapy. Murriston Davies designates it as the greatest present-day advance in lung surgery. Phthisiotherapists, with a few ultraconservative exceptions, are beginning to look on it as the greatest addition to their armamentarium since Koch's discovery of tuberculin. So important has it become that several articles have appeared during the past three years as to who should be given priority for its discovery.

Forlanini, in a comprehensive monograph,[1] states that Carson (an English physician) in 1843, himself in 1881, and Murphy in 1898, each independently of the other's work, gave birth to the idea of placing a badly diseased lung at rest by compression with gas. Forlanini, as far as I can ascertain from a scrutiny of the literature on the subject, must be credited with the idea of performing artificial pneumothorax "medically" instead of surgically. Forlanini did not perform the operation until several years after his utterances of 1881.

Following the lead of Forlanini, the Germans seized eagerly on this method, and to Brauer and Spengler[2] belong the credit of stimulating world-wide interest by their celebrated report of 102 cases, representing operations performed at Davos, Switzerland, and in Hamburg, Germany, over a period of five years. They, however, changed Forlanini's method by creating the *Schnitt Methode* (incision method). They make a fairly large incision over the fourth, fifth or sixth intercostal spaces anteriorly, expose the intercostal muscle, and then force a blunt Salomon cannula into the pleural space. Brauer firmly maintains that his method is the only correct one, since it insures safety to the patient and absolute knowledge of the presence of the cannula in the pleural cavity. Still, Forlanini's method has become the one of choice among the majority who perform this operation (even the Germans), because it is far simpler and does not submit the patient to a surgical operation of considerable severity, and with improved technic and the more careful observation of the manometer, the accidents, particularly those occasioned by gas emboli, which occurred occasionally in the earlier operations, are to-day practically eliminated. Therefore, barring the cases of extensive pleural adhesions, the Forlanini, or puncture method, is applicable to all cases in which artificial pneumothorax is indicated; and the Brauer, or incision method, should be reserved for the former.

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* Read before the St. Francis Medical Society, March 27, 1914.

[1] Forlanini: Therap. d. Gegenw., 1910, Nos. 5 and 6.

[2] Brauer and Spengler: Beitr. z. Klin. d. Tuberc., 1911, xix, 1.

From the numerous reports pouring in, and from my own limited experiences in the past two years, I feel confident that Brauer's method will in future be very rarely employed.

Just exactly what are we trying to accomplish when we compress a tuberculous lung? Principally delay; time in which to allow our other methods of treatment to become efficacious. Rest is given the tuberculous patient to prevent auto-inoculation. What more rational than rest, direct and complete rest, to the diseased part which is generating toxins? Forlanini states that an artificial pneumothorax must place the lung at "absolute rest, and this must be maintained until absolute cure results."

The direct effect of compressing a diseased lung with nitrogen is sometimes most startling. I have seen a stubborn cough cease within twenty-four hours after complete compression; temperature drop to normal after a few days; sputum rapidly diminish, and a general all-round improvement result in the patient's condition. There can be no question that artificial pneumothorax has rescued many tuberculous patients who did not respond to other methods of treatment and who would have died otherwise.

The theories of the mechanism of healing by this treatment as generally agreed on are: (1) rest to the involved organ; (2) an ischemia of the lung because of the elimination of venous circulation; (3) a diminution of toxin absorption, and (4) ultimate scarring over of diseased tissue. Perhaps more theories will evolve to explain further why we sometimes obtain such remarkable results in hopeless cases, when all other methods have proved futile. The direct effect of nitrogen on the tissues may offer a fertile field for investigation.

The indications for performing an artificial pneumothorax have been concisely given by Zink[3] in a report of 110 cases in which operation was performed at the Basel Sanatorium, Davos, as follows: (1) in all chronic destructive tuberculous processes (limited to one lobe) with a tendency to fibrous degeneration and cavity formation; (2) in all severe acute infiltrating and cheesy pneumonic forms; (3) in chronic infiltrating lesions without much destruction if they are of a progressive character or show no tendency to retrogression under prolonged treatment by other means, and (4) in uncontrollable hemorrhage. These indications are an amplification of those originally laid down by Forlanini and Brauer and Spengler.

The original warning not to compress a diseased lung when the other was involved has been modified. Reports of 104 cases, by Saugman, involving 5,000 inflations, Zink's exhaustive treatise, the recent further report of eighty-eight cases by Lucius Spengler, and the recent work of Dunham and Rockhill[4] in this country prove that in bilateral cases in which there is not too much involvement of the "good" lung, the other may be successfully and safely compressed. Arsperger[5] also reports excellent results in pleurisy with effusion, by early aspiration of the effusion, and introducing between the sheets of the pleura from 150 to 600 c.c. of nitrogen to keep them apart and check further production of effusion and adhesions. Incidentally he combines this method with autoserotherapy, that is, the subcutaneous reinjection of from 1 to 3 c.c. of the patient's own effusion.

Claude Lillingston, Herbert Rhodes, Robinson and Floyd, Rist, Maingot, Barnard in France, Sauerbruch and von Muralt, and numerous others who have given more or less extensive reports of their work during the past three years, agree on these indications. Mary Lapham[6] states as contra-indication (to lung compression), "any complication sufficient in itself to inhibit recovery and too great an involvement of the other lung." In short, in the reports of more than a thousand cases, representing many thousand inflations reported during the past five years by the best observers and workers in the field of pulmonary tuberculosis, there seems to be an agreement that artificial pneumothorax should be performed only when one lung at least is fairly sound; that it should be reserved for the case which does not respond to other therapy, and that it should be used only in cases in which, through its application, there will be a chance of arresting the disease.

In my own work during the past two years it occurred to me that in hopeless cases the patient who was constantly coughing and expectorating without relief might, through this method, end his days in comfort without the use of the large doses of morphin. I therefore attempted lung compression in three cases of very advanced tuberculosis with severe involvement of both lungs, in which, however, a large cavity could be diagnosed in one. These patients all had violent, persistent coughs and excessive purulent expectoration, the picture usually seen in terminal tuberculosis. They were selected because in each case a large cavity could be diagnosed in one lung, and on the rather dangerous assumption that the cough and expectoration was being formed in this cavity. At any rate, it seemed right to test the palliative effect of lung compression. The patient in each case was warned of the danger of the procedure and his consent and that of responsible relatives obtained. The report of these cases is briefly given below.

CASE 1.—F. O., army lieutenant, aged 34, seen at Letterman Hospital, Presidio, May 15, 1913, had had repeated attacks of high temperature for two years which had been diagnosed as malaria. Bacilli of tuberculosis had been found in sputum six months ago. The patient returned from the Philippines three weeks ago and had been in bed ever since. He had lost 40 pounds in six months, and was a much-emaciated man. The temperature ranged from 98 to 103. Examination of lungs showed extensive involvement of both lungs, most pronounced in the left, with a large cavity in the lower lobe of the left lung. The sputum measured from 8 to 10 ounces daily and showed numerous bacilli. Cough was persistent. The condition of the patient was very bad and the prognosis had been given of "exitus in about two weeks." The patient was removed at considerable risk to a private sanatorium, and on May 25 the first pneumothorax was performed, 100 c.c. nitrogen being admitted through the seventh intercostal space in the midaxillary line, under novocain (0.5 per cent.) anesthesia. The effect on the patient of even this small amount of gas was most distressing. He became quite cyanotic and was very dyspneic for about two hours. May 30, 200 c.c. nitrogen were admitted; June 7, 250 c.c.; June 14, 700 c.c., and June 28, 850 c.c. Subsequent inflations after the first were fairly well tolerated, and after the second the temperature became lower and the sputum started to decrease. After the fourth inflation, June 14, 1913, the patient's cough had practically disappeared, the sputum never reached more than ½ ounce in twenty-four hours, his weight had increased about 10 pounds, and in all respects he was greatly improved. June 29, after his fifth inflation, he left the sanatorium and went to Fort Bayard, N. Mex. It had been his great desire to go to the latter place, but his weakness prior to pneumothorax treatment had been so intense that the removal was interdicted. He made the two days' trip without mishap. Advices from Fort Bayard, September 26, showed that he had received two further inflations and was improving. His improvement continued until very recently, when he became rapidly worse and died March 7, 1914.

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[3] Zink: Beitr. z. Klin. d. Tuberc., 1913, xxviii, 155.

[4] Dunham, Kennon, and Rockhill, Charles S.: Therapeutic Pneumothorax as a Palliative Measure, Safeguarded by Stereoroentgenograms, a Report of Twenty Cases, THE JOURNAL A. M. A., Sept. 13, 1913, p. 826.

[5] Arsperger: Beitr. z. Klin. d. Tuberc., 1913, xxviii.

[6] Lapham, Mary E.: The Treatment of Pulmonary Tuberculosis, THE JOURNAL A. M. A., Sept. 14, 1912, p. 866.

I feel certain that lung compression in this case prolonged the patient's life for nearly ten months, most of it in comfort.

CASE 2.—P. V., referred by Dr. John Gallwey, with a very advanced, hopeless case of tuberculosis of five years' duration, was a much-emaciated man, with extensive infiltrations of both lungs, with a large cavity in the middle lobe of the right lung. The cough was contant and painful, and the dyspnea at times most distressing. Sept. 20, 1913, 100 c.c. nitrogen were admitted into the seventh interspace, right midaxillary line. September 22, 400 c.c. nitrogen were admitted. After this inflation the patient became very cyanotic and dyspneic. September 23, the patient left the sanatorium and went to his home feeling better. For one month after this the patient, although there was no change in his general condition, almost entirely lost his cough. He died about six weeks after the second inflation.

CASE 3.—G. S., first seen Aug. 5, 1913, had a history of slight cough, and a loss of 5 pounds in weight. One brother and several relatives on both the father's and mother's side of the family died of tuberculosis. There was a slight lesion in the apex of the right lung. No bacilli were found in the sputum. Von Pirquet was positive. Dietary treatment, rest and tuberculin were resorted to and the patient improved rapidly, gaining twelve pounds in weight and entirely losing the cough. November 28, he appeared at my office very much frightened, as he was having an extensive hemoptysis. He was immediately put to bed and kept quiet until the hemorrhage had partly ceased. November 29, the sputum, which had been free from tubercle bacilli, showed large numbers of the latter. December 5th, the hemoptyses had stopped but the temperature ranged from 100 to 104, and examination revealed an extensive cavity in the middle lobe of the right lung and beginning infiltration of the left lung. This condition can be accounted for only on the theory that the right lung must have been centrally undermined so that no physical signs were apparent. A sudden rupture into a large vessel caused the hemorrhage and opened up the cavity. The patient's condition becoming rapidly worse, pneumothorax was applied December 17 (Forlanini method), by admitting 350 c.c. of nitrogen into the sixth interspace right midaxillary line. December 18, 400 c.c. were admitted. December 27, 800 c.c., and January 17, 1,000 c.c. The patient's cough became greatly improved, "blood-spitting" following the hemoptyses ceased, and the temperature dropped to 99.5. February 1, he was suddenly seized with pneumonia, and died Feb. 4, 1914.

This was undoubtedly an acute, progressive tuberculosis, and the prognosis was in doubt from the start.

These three cases, all different in type but progressive, advanced and hopeless, were selected for lung compression to relieve cough and expectoration and not with a hope of arrest. In the former sense, the procedure must be looked on as successful.

I should, therefore, like to add to the indications usually given for lung compression the following: Hopelessly advanced cases in which after careful examination it is ascertained that cough and expectoration is being produced from a large cavity in one lung even though the other is badly infiltrated.

The technic of artificial pneumothorax is simple. I use a Hawsmann modification of the Forlanini apparatus and a trocar 2 inches in length. I formerly used a larger trocar of wider caliber, but have found the shorter one more satisfactory in most cases, as with it there is little danger of penetrating the lung. Great care should be exercised in avoiding damage to the lung-tissue. As careful a sepsis should be used as in any operation. I use as an anesthetic 0.5 per cent. novocain, and apply it first deeply and then superficially. In this way I believe that the so-called eclamptic attacks due to a pleural reflex, and cases of nervous shock can be, to a great degree, avoided.

Much has been written recently by Sillig[7] and Orlowski and Jofanno[8] on pleural reflexes, which are now believed to be responsible for such conditions as laryngospasm, slowing of the pulse, vertigo, cough, sudden paleness of the face and fainting. These conditions heretofore have been attributed to gas emboli.

I always use the Forlanini method and pass the trocar in the sixth or seventh interspace in the midaxillary line whenever possible. Careful physical examination controlled by roentgenography should guide the operator as to the best space for entrance. When adhesions prevent going into the space of choice, an attempt may be made higher up in the fifth or fourth interspace anteriorly. Several punctures are sometimes necessary before arriving in a free pleural space.

The real success in applying artificial pneumothorax lies with the manometer. One is sure that he is in the pleural cavity by the manometer registering negative pressure. The manometer tells us, by not registering at all or by registering positive pressure, whether we are in lung tissue, in a blood-vessel, in the pleural wall, or whether our needle is obstructed. Brauer calls negative pressure a pneumothorax symptom. Sometimes when no fluctuation of the manometer is obtained, a small amount of nitrogen—from 25 to 50 c.c.—may be cautiously admitted. If small adhesions are present, these will be broken and the manometer will then register.

Considerable has been written on the reading of the manometer. The number of millimeters negative or positive pressure is immaterial. The rule which I have established for myself is never to allow gas to flow until the manometer registers free and full fluctuations, and immediately to stop the flow when the pressure changes from negative to positive. I do not measure the exact amount of the latter, because I never on first inflation allow more than from 300 to 400 c.c. to enter, and sometimes stop with 100. On the following day from 300 to 500 c.c. are given, then an interval of two or three weeks is allowed to elapse, when from 600 to 800 c.c. are admitted, depending on the manometer. After the third inflation, compression is performed every few weeks and sufficient nitrogen admitted to maintain positive pressure, not to exceed 1,000 c.c.

Robinson and Floyd in this country give 1,000 c.c. as first injection. Originally Forlanini, Brauer and their disciples gave as high as 2,000 c.c. at an inflation, obtaining the highest possible positive pressure. Subsequent observers have shown this to be not only unnecessary but absolutely dangerous, causing such complications as emphysema, dislocation of the heart and rupture into the opposite lung. The best results to-day are accomplished by using just enough nitrogen to compress the lung sufficiently. This never should on first inflation exceed 400 c.c., and on subsequent inflations 1,000 c.c. Pressure should be tested after admission of each hundred cubic centimeters. If these precautions are taken, the numerous complications heretofore reported may be avoided. In my own work the only complication (in two cases) has been a subcutaneous emphysema which, although slightly painful, disappears in a few days.

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[7] Sillig: Rev. médicale de la Suisse romande, 1913, No. 7, excerpt Internat. Centralbl. d. Tuberc. Forsch.

[8] Orlowski and Jofanno: Beitr. z. Klin. d. Tuberc., 1914, xxx, No. 1.

The results in artificial pneumothorax have been uniformly good. Brauer and Spengler[2] in their 102 cases assert that accurate statistics of arrests by this method are not practicable, since (1) every case must be analyzed for itself; (2) in many cases we fail to produce a pneumothorax on account of pleuritic adhesions, and (3) cases in which we expect failure are often successful and vice versa. They conclude, however, by stating that they obtained results which could not have otherwise been accomplished.

Saugman[9] reported 104 cases. In 30 per cent., pneumothorax could not be performed. In seventy-two cases, effectual compression was obtained. He reports good results.

Zink,[3] in 110 cases, reports that he accomplished effectual compression in eighty-one cases.

Lucius Spengler[10] reports eighty-eight cases, in which he obtained in twenty-three cases, or 26 per cent., permanent results in from six months to five years. Thirty-six patients, or 41 per cent., are under treatment but improving; ten cases, or 11⅓ per cent., are improved, and nineteen cases, or 21⅔ per cent., were unsuccessful. He reports a favorable result in 78⅓ per cent. of all cases.

E. Grundt[11] reports twenty-eight cases, with success in nine.

L. Hamman and M. F. Sloan[12] report twenty cases with successful results.

Rothschild and Fehleisen[13] report thirty-three cases with good results.

R. C. Matson[14] reported sixteen cases with three arrests and five cases steadily improving.

Dunham and Rockhill[4] treated twenty patients with good results. They dwell particularly on the value of Roentgen examinations.

H. M. King and C. W. Mills[15] report sixteen cases. In two cases there was permanent arrest, in six temporary improvement, and in one case hemorrhage (which was controlled).

In six cases on account of pleural adhesions compression was unsuccessful.

Mary Lapham[8] reports thirty-one cases with success in 40 per cent.

My own cases thus far number fourteen, covering a period of less than two years. The cases have been carefully selected from a large material, based on the indications as given above. The number is small because I am still of the belief that only those cases should be reserved for artificial pneumothorax which, after a fair test, do not respond to our other well-tried methods of treatment. In this series are those advanced cases reported above. Of the other eleven, two patients could not be inflated, one on account of adhesions, the other on account of an old pleurisy with effusion. Three cases are arrested, one patient is rapidly improving, and four patients are progressing favorably, being inflated at intervals of four weeks. Two patients stopped treatment of their own volition. All cases were, whenever possible, controlled by roentgenograms before operation and before the second inflation. All compressions have been made by the Forlanini method, with 0.5 per cent. novocain anesthesia.

I cannot agree with those observers who assert that artificial pneumothorax should be performed only in a hospital or sanatorium. I have performed it at the clinic, at my office and at the patient's home. Whenever possible I perform the first inflation at a hospital, permitting the patient to leave the same day. When a pneumothorax is once established, subsequent inflations are simply and quickly performed if one's technic is correct. I agree with Lillingston[16] who states that most cases of sudden death in the past have been due to faulty technic. As long as careful asepsis, careful anesthesia and careful reading of the manometer are observed, no accidents of serious import should occur.

I wish to thank Dr. George H. Hubbell for the valuable assistance rendered in the roentgenographic work in these cases.

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[9] Saugman: Internat. Cong. Med., London, August, 1913.
[10] Spengler, Lucius: Internat. Centralbl., January, 1914.
[11] Grundt, E.: Med. Rév., 1913, No. 6.
[12] Hamman, L., and Sloan, M. F.: Johns Hopkins Hosp. Bull., February, 1913.
[13] Rothschild and Fehleisen: California State Med. Jour., September, 1913.
[14] Matson, Ralph C.: Northwest Med., January, 1914, p. 10.
[15] King, H. M., and Mills, C. W.: Am. Jour. Med. Sc., 1913, cxlvi, 331.
[16] Lillingston, Claude: Lancet, London, 1913, ii, 185.

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# RADIUM TREATMENT OF CUTANEOUS EPITHELIOMAS BY SINGLE OR MASSIVE DOSES *

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Wickham and Degrais[1] have microscopically determined that "cancer cells, exposed to radium after a primary hypertrophy, disorganize, become soft, disintegrate and are probably eliminated by a phagocytosis. The connective tissue enveloping and separating the mass of cancer-cells, on the other hand, is stimulated and regenerated by the invasion of embryonic nuclei, which dissociate the groups of cancerous cells, finally replacing them. These modifications tend to a fibrous transformation of the tumor, producing, as we know, the unusually good scar that results with such a healing." That any one of the three so-called alpha, beta or gamma rays has an advantage in producing this effect I cannot affirm. I should rather believe that in the method I use the results are probably due to the great amount of rays to which the tissues are exposed, for I use no screen except a thin layer of mica which only filters out some of the alpha rays. The gamma rays constitute only 1 per cent. of the whole radio-activity and, while they are the ultrapenetrating rays and the only ones available for treating deep-seated lesions through the unbroken skin, they are in such a comparatively small quantity that most extensive exposures would seem to be necessary to get a sufficient effect. This in a measure can be overcome by the multiple source and cross-fire methods

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*Read before the United Medical Society of New York.
[1] Wickham and Degrais: Radiumtherapy, Funk and Wagnalls Co., New York, 1910.

of Wickham and Degrais, but the failure to get results often in the deeper-seated lesions would seem to be due to the inability to secure the penetration of the rays in sufficient amount to all parts of the tumor rather than to the character of the rays. A sufficient number of any one of the alpha, beta or gamma rays will, it has been demonstrated, produce a radiodermatitis. Beta rays have necessarily predominated in my exposures.

Masotti[2] pictures and reports several cases of epithelioma of the skin healed by radium. He remarks on the scar, the ease of the method, and states that he found it unnecessary to determine the variety of epithelioma, as radium was equally effective in the cicatricial, squamous, ulcerating or fungating variety, the length of exposures varying according to the depth of the lesion. He used the rays unfiltered or with only a very thin rubber layer between the tissues and ray source

Dreyer[3] in his little book reports and pictures cases of epithelioma of the cheek and nose healed by radium, and Bayet has resolved idiopathic sarcoma of the skin with two-hour applications every second day over a sufficient period. He emphasizes the accepted fact of the relatively greater effect of radium on sarcoma as compared with carcinoma and epithelioma.

Robert Abbe of New York in his various communications on radium and cancer has mentioned numerous cases of cutaneous epithelioma successfully treated with radium and he would seem unquestionably to give preference to radium in cutaneous epithelioma therapeutics.

Wickham and Degrais,[4] who probably have had far greater experience with radium than any other observers, are most enthusiastic about their results in the treatment of cutaneous cancers. They report numerous cases, varying from beginning degeneration in warts or keratoses to rapidly growing, malignant, neglected and in some instances inoperable carcinoma beginning in the skin, in which healing has been effected with radium. Many of the patients have remained well after several years, and their photographs show uniformly a remarkably good cosmetic result.

Bayet has treated twenty-five cases of epithelioma. He uses for epithelioma practically unfiltered rays. Six sittings would after two weeks be followed by a strong reaction, a yellowish crusting on non-ulcerating epithelioma, and the formation of a sort of diphtheritic membrane on ulcerating epithelioma with a slow absorption of the diseased tissue under these coverings.

Williams and Ellsworth[5] picture and describe twelve cases of superficial new growths healed with radium, some remaining well after five years. They used a cell of 50 mg. and advised from three to ten exposures, not more than two per week. They conclude that "the application of pure radium bromid in sufficient amount and properly used is a harmless, painless and efficient method of treating early superficial new growths, and particularly of the face because of the excellent cosmetic results.

Simpson[6] has treated about a dozen cases of epithelioma situated on the face. Two of these were of the lower lip, location which, to my mind, should contra-indicate any form of treatment but extensive surgery followed possibly by radium treatment. He compares his results favorably with those of the Roentgen ray and says that the indications and contra-indications are the same in both forms of treatment.

Dominici and Warden[7] picture and describe some remarkable results in the treatment of malignant disease, mostly inoperable, among which were an epithelioma of the nose and one of the lip, both completely healed. He speaks of these results as chiefly interesting in the remarkable restoration of tissue—"the radium seeming to have the effect of singling out the malignant tissue and causing its absorption and of sparing the normal tissue and determining even a certain amount of healthy new growth."

Henri Audouy[8] reports 25 cases of cutaneous epithelioma treated by radium and concludes that it has some sort of specific action on the cancer-cell—that it will heal even vegetating or ulcerating cutaneous epithelioma and that it is the least painful and gives the best cosmetic results. He advises using the composite rays rather than the ultrapenetrating rays and describes two methods: first, numerous short exposures without much reaction; second, two or three prolonged exposures producing considerable reaction and destruction of the cancer-cells. Several of his cases would seem to show that Audouy grasped the importance of a thorough destruction of the cancer-cells.

Pierre Petit[9] in 1908 observed nine cases of cancer of the skin and mucosa successfully treated by radium. The method followed was after Dominici, using only the ultrapenetrating rays and filtering out the alpha and most of the beta rays by lead screens from 0.5 mm. to several millimeters in thickness. Naturally, it was necessary to make long exposures, for only a comparatively small percentage of radium rays are ultrapenetrating. Petit could produce a radiodermatitis if enough of these rays were used, but declared the advantage of the method was the non-production of radiodermatitis. The question arises, Did he get enough of any rays to the cancer-cells to destroy them completely? His cases were reported too soon after treatment to determine this fact. He reported three failures to influence, but these were extensive lesions of the lower lip and mouth, with glandular involvement.

The cases herein reported were all treated with a 10 mg. cell of radium from the Curie Laboratory, containing 2.55 mg. of pure radium bromid with a radioactivity of 1,300,000. No filter was used except the three-eighth- to one-half-inch layer of air space, the exposures being made at this distance from the lesion. Crusts, when present, were softened and removed. In no instance was a biopsy made because I am loath to open up any blood- or lymph-channels before the cells forming the lesion are destroyed. The diagnosis was usually easy and confirmed by the several dermatologists in my clinic.

Whenever possible, the single or massive-dose method was used because after a considerable experience in the Roentgen-ray treatment of cancer, extending over a number of years, I had become convinced that there were an infinitely smaller number of recurrences after the single- or massive-dose method.

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[2] Masotti: Traitement des dermatoses par le radium, Baillière et fils, Paris, 1910.

[3] Dreyer, Albert: Radium als Kosmetikum, Bonn, F. Cohen, 1913.

[4] Wickham and Degrais: Radium and Cancer, Hoeber, New York, 1913.

[5] Williams and Ellsworth: Treatment of Superficial New Growths by Pure Radium Bromid, The Journal A. M. A., May 31, 1913, p. 1694.

[6] Simpson, F. E.: Radium in Skin Diseases, The Journal A. M. A., July 12, 1913, p. 80.

[7] Dominici and Warden: Technique and Results of Radium Therapy in Malignant Disease, Brit. Med. Jour., Aug. 27, 1910, p. 516.

[8] Audouy, Henri: Traitement d'épitheliome cutané par le radium, Paris Theses, 1910-11, ii, No. 13.

[9] Petit, Pierre: De l'application du rayonnement ultra pénétrant du radium au traitement des cancers de la peau et des muqueuses, Paris Theses, 1908-09, No. 91.

Exposures varied from twelve or fifteen to twenty-four hours, depending on the depth and nature of the lesion. Where it was impossible to do this at one sitting, second or even third exposures were given as soon after the first as possible in order to approximate this method and time.

Clinically, there followed in from two to five days an erythema of the normal tissue—for a considerable area of normal tissue immediately surrounding the lesion was always included in order that any outlying cancer-cells might be destroyed—with the formation of a membranous crust on the lesion itself if ulcerating, or, softening, and breaking down with discharge beneath a rupial, soft crust, if it were a solid nodule. At the end of the third week the lesions began to dry and clean up with a diminution of the redness of normal tissue, and healing proceeded, under a dry scab often, with the formation of a thin, nearly level, pale scar in from five to eight weeks.

Clinically, to destroy the cancer-cell, while only producing a more or less pronounced inflammatory reaction in the healthy cells from which they can recover, has been proved to be quite practicable and I would estimate the margin of time-exposure between the destruction of the cancer-cells and up to a destruction of the normal tissue-cells adjacent, roughly, as about one-fifth of the whole time necessary to destroy the cancer-cells, which leaves a pretty safe working margin for any slight error in overexposure.

Granting, for the sake of argument, that more or less normal tissue is destroyed in our efforts completely to destroy all the cancer-cells, are we not better justified in a certain amount of scarring than in a probability of a recurrence? As a matter of fact, the cosmetic results in my cases compare most favorably with any form of treatment I have ever seen. None of the patients have complained of any considerable pain, such as I have observed after similar Roentgen-ray exposures. They have described their sensations as itching or slight stinging. All the lesions have healed kindly after these massive doses.

My idea has then been, I repeat, to give as long a single exposure as compatible with a return of the included healthy cells to normal, or at least, a large part of them, this latter being of considerable importance from a cosmetic point of view. I have adopted this method in the radium treatment of cutaneous epithelioma because it is, I have become convinced, the method to be used in the Roentgen-ray treatment of similar lesions. Time alone will verify the ultimate success of this method.

Its healing qualities are demonstrated in the following cases:

CASE 1.—H. B., American woman, aged 46. Two and a half years ago the lesion first appeared as a little pimple which slowly grew and after six or eight months ulcerated and scabbed. The scab would fall off and the lesion would bleed. For several months the lesion was burned with some kind of an acid every week or two. The ulcer apparently never healed, for when first seen, fourteen months ago, the patient presented on her left cheek a lesion the size of a five-cent piece with a typical, pearly, raised edge and a smooth base with one or two small pearly nodules in it. The patient was then given three comparatively short applications of radium at three-day intervals. The lesion, after six weeks, seemed entirely healed, but when seen six months later, there was a recurrence along the lower half of the original pearly edge. I then gave the patient one single massive dose of radium which was followed by the usual reaction and formation of a greasy-looking crust. The lesion completely healed under this with a smooth, white and practically level scar, and now, after eight months, the patient is quite well.

CASE 2.—A. H., German man, aged 47. The lesion first appeared over the right maxillary region ten years ago, slowly grew and finally a little scab appeared on it, which would fall off. Each time the scab fell off bleeding would occur and the lesion would apparently have increased slightly in size. At intervals of from six to twelve months the lesion had been curetted and cauterized with silver nitrate followed by apparent healing, but with a relapse each time. Fourteen months ago, when first seen, the patient presented a typical, non-ulcerating epithelioma about the size of a quarter with scattered pearly nodules over its base and a typical, raised, pearly serpiginous edge. Six comparatively short applications of radium were made over a period of five weeks and, while the lesion apparently healed with little or no reaction, it showed signs of recurring along one edge some six months later. One massive single dose of radium was then given and the area, after the usual reaction, seemed completely healed. For eight months the patient has remained free of disease with a smooth, level scar at the site of the lesion.

CASE 3.—T. H., American man, aged 40. The lesion began three and one-half years ago on the left cheek and soon became a scabbed and bleeding superficial ulcer. It had never grown rapidly although it had increased in size, and when, seen, fourteen months ago, was a typical, superficial ulcerating epithelioma the size of a three-cent piece. Four comparatively short radium exposures were given and the lesion healed with little or no reaction, remaining well up to three months ago, when the patient presented himself with a recurrence of the ulceration at the site of the old lesion, and a red, indurated condition extending beyond the lesion for a quarter to a half inch. This patient was then given a very long application of radium at two sittings on successive days, as it was impossible for him to spare the time during one twenty-four-hour period and, after a very pronounced reaction with considerable crusting, the lesion after six weeks has healed and seemingly presents a perfectly smooth scar without any surrounding induration. The patient is apparently well.

CASE 4.—H. C., American woman, aged 60. Four years ago the lesion began as a pimple on the right ala of the nose. It slowly grew and when scratched, she says, would form a scab, which would fall off, when the lesion would occasionally bleed. It was then cauterized and healed. Three years ago she had a relapse of the condition and the lesion was curetted and cauterized with silver nitrate and again healed. Fifteen months ago there was again a relapse at the site of the old lesion and when the patient was seen she had an ulcer in the center of an old scar with hard, pearly, raised, typical edges and a smooth ulcerating base. The lesion apparently had not involved the deeper parts. The patient was given three comparatively long exposures on successive days amounting in reality to a single massive dose and the lesion promptly healed and now remains well after thirteen months.

CASE 5.—J. H., American laborer, aged 46. The trouble began eleven years ago as a little sore on the left cheek near the angle of the mouth. It slowly grew, in spite of treatment with salves and caustics, until four years ago, when it was curetted out and cauterized with silver nitrate. The lesion did not heal and was curetted again three years ago. The lesion never entirely healed and eighteen months ago it was again curetted and burned with silver nitrate and healed except a firm edge, which persisted. When first seen, fourteen months ago, the patient presented a serpiginous, non-ulcerating lesion with raised, pearly edges on a fairly deep, indurated base, with considerable scar-tissue and one or two other small pearly nodules scattered through it. After three comparatively long exposures with as short a space of time as convenient the lesion healed, after considerable reaction, and his doctor writes me that up to the time the patient died by accident, eight months later, there was no sign whatever of a recurrence.

CASE 6.—M. N., American woman, aged 70. Two years ago the trouble began on the left ala of the patient's nose as a little scab and when the patient was first seen, thirteen months ago, the lesion had spread so rapidly that it involved the whole of the lower end, both alae of the nose, extended out on the left cheek and was a rapidly spreading, excavating ulceration with typical, hard edges and apparently a very malignant process. The tip and right ala of the nose were exposed to a massive dose of Roentgen rays and the left ala and a portion of the disease extending out on the right cheek, comprising an area a little larger than a quarter, was exposed to a massive dose of radium. This patient I have not seen, but her physician writes me that although her nose was very sore for nearly two months the lesion entirely healed with a smooth, white atrophic scar, giving the nose a small, pinched, drawn appearance. It has remained smooth and clean up to the present, a period of eleven months. This was certainly a malignant, rapidly spreading process, inoperable without great destruction of tissue, and is, I consider, a most excellent result for this method with both the Roentgen ray and radium.

Case 7.—E. C., American man, aged 30. Lesion began between four and five years ago as a pimple on the left malar region. It slowly grew, would scab and occasionally bleed. The lesion was burned out two or three times but never entirely healed. When first seen, thirteen months ago, there was a typical, hard, pearly non-ulcerating epithelioma at the upper edge of an old scar about three-quarters of an inch in length and three-eighths of an inch in width. The patient was given four moderately long radium exposures, which were followed by a very moderate reaction, with healing of the lesion and a splendid scar. Three months ago the patient presented a slight recurrence at the site of the original lesion and a single massive exposure was given, followed by a considerable reaction and healing with as good a scar as was present before the large dose was administered.

Case 8.—F. L., German man, aged 56. The lesion began about three years ago as a pimple in front of the right ear. It grew to the size of a large pea and was curetted and silver nitrate applied to the wound. One year ago the patient noticed a little lump again at the same spot, which has gradually grown and has sensations of heat and itching. When seen, there was a distinctly firm nodule the size of a large pea, pearly, waxy-looking, hard and non-ulcerating. It was a question whether this was a recurrence of the old trouble or a keloid, the result of the cauterization. Believing that either would be favorably influenced by radium, I gave him a moderately prolonged exposure and, while the lesion greatly diminished in size, there still presents, after nine months, a small, hard, white, waxy nodule which is under observation and which, I am quite convinced now, was originally a keloid. The condition was, however, benefited and no further scarring resulted from the radium application.

Case 9.—W. R., American woman. Patient first noticed a little scab on the forehead four and one-half years ago. It gradually grew, ulcerated, and two and one-half years ago patient began having Roentgen-ray treatment. This she had off and on with some benefit, but the lesion never entirely healed under it. When first seen, six months ago, patient had a red patch, size of a half-dollar, with an elevated, hard epithelioma, finger-nail-sized, at the lower edge of the patch. Four very considerable exposures during a period of seven days were administered, practically amounting to a single massive dose, and the lesion promptly healed under the usual crusting. The patient now presents a level, soft, and not disfiguring scar.

Case 10.—A. R., German woman, aged 50. Trouble first began as a pimple on the left cheek nearly three years ago. Patient would scratch it, a scab would form, fall off and the lesion would bleed. On two or three occasions the lesion had been curetted and cauterized with silver nitrate, followed by a fairly prompt relapse each time. When first seen, ten months ago, patient presented a scabbed superficial lesion with pearly, hard edges, size of a three-cent piece. The lesion healed promptly after a moderately long single exposure and after nine months the patient now is well with a splendid cosmetic result.

Case 11.—M. T., German man, aged 50. The lesion first began as a pimple over right eye about twelve years ago, gradually grew and bled rather profusely at times. The lesion has been curetted and cauterized with silver nitrate four times in the past nine years with a relapse in from twelve to eighteen months after each treatment. When first seen, ten months ago, patient presented a superficial scabbed epithelioma with typical, elevated, pearly, hard edges the size of a five-cent piece. After a moderately prolonged single application the lesion healed and now remains well after nine months.

Case 12.—M. J., German woman, aged 60. Three and a half years ago patient first noticed a small pimple on her forehead which gradually grew larger. It was treated with the Roentgen ray. Nineteen months ago it was curetted and cauterized with silver nitrate. It began to relapse sixteen months ago and had gradually increased in size until, when seen, nine months ago, the patient presented two recurring nodules the size of large peas of typical pearly character, along the edge of an old scar. After several moderately long exposures with radium during as short a period of time as possible a considerable reaction resulted, followed by healing with a splendid soft level scar and the patient remains well after seven months. The massive dose was here approximated as nearly as possible.

Case 13.—J. S., American man, aged 65. Lesion began about three years ago as a pimple on one of the cartilaginous edges of the lobe of the left ear, gradually grew and, when seen, eight months ago, was a typically firm, raised, pearly non-ulcerating epitheliomatous tumor, the size of a finger-nail. A single, prolonged application with radium was made and the patient was instructed to report from his home in the South at intervals. At the slightest sign of a recurrence he was requested to come for further treatment and, while I have not heard from him, I have reason to believe that his physician would have referred him back to me had he been in further trouble.

Case 14.—J. McC., Irishman, aged 54. The lesion began as a small indurated lump over the cartilaginous roll at the back of his left ear fifteen months ago. When first seen, six months ago, the patient presented a considerably raised swelling, ulcerated at the top and scabbed, situated on the back of the lobe of the left ear, occupying practically the whole of the width of the lobe and extending an inch and a half along its long or vertical axis, distinctly pushing out the ear from the side of the patient's head as compared with the opposite side. Moderately long exposures were given to this mass at two different sittings as it was impossible to include the lesion entirely with one exposure. While the lesion after some reaction was greatly diminished in size and the ulceration healed, there still remained a very considerably elevated and active indurated condition. Five and one-half months ago the lesion was exposed to my radium cell for seventeen hours, and this exposure was followed by a complete disappearance of the mass after a considerable reaction. The scar can now barely be seen and represents apparently the ulcerating portion of the lesion. This was a malignant, rapidly growing epithelioma and, to my mind, represents at present an excellent result.

Case 15.—American woman, aged 64. About fifteen years ago trouble began as a little speck, as patient describes it, on her nose, gradually grew, scabbed and bled occasionally. Seven years ago the lesion was burned out under ether but it broke out again three years ago and was then curetted and cauterized with silver nitrate. After this it healed but soon again broke out, and was again curetted and cauterized; a relapse followed, and when the patient was seen, eight months ago, the lesion had been present three years. On examination a cicatricial scar occupied an area the size of a half-dollar along the upper half of which there was a crescent-shaped, elongated, hard, pearly, raised, typical epithelioma. Eight months ago three moderately long exposures with radium were given without much reaction and, while the lesion improved, there still remained distinct evidences of it. Six months ago several prolonged applications within as short a space of time as possible, aggregating many hours, trying for the massive-dose effect—though it was impossible because of the patient's age and position to do this all at one or two sittings—the lesion was healed after a considerable reaction and now patient has a very perfect, smooth, soft, pliable, level scar.

Case 16.—F. S., German woman, aged 40. Lesion began on the right malar region ten years ago, has been cauterized and curetted two or three times but relapsed regularly and now has been growing slowly for three years. When first seen, seven months ago, the lesion was a soft, fungating, cauliflower-like epithelioma with a firm, indurated edge and apparently considerable involvement of the underlying tissue. A single prolonged exposure was given the patient, with usual instructions to report, but I have been unable to hear of the patient since exposure.

Case 17.—C. T., Irish woman, aged 67. Patient had had lupus erythematosus scattered over the face and forehead at varying periods for many years. Fifteen years ago she had an open sore cut out of her lip near the left ala of her nose. One and one-half years ago a pimple began to grow on her left cheek, grew rapidly into a soft granulating mass and then stopped; latterly it had been growing again. When seen, six months ago, it was a soft-looking, highly raised, granulomatous mass with rather deep induration of the base and a firm induration extending out into the surrounding tissue for about a quarter to three-eighths of an inch. At that time several prolonged applications were made within as short a period as convenient, with the idea of approaching the single, massive-dose method as nearly as possible, aggregating some twenty-eight hours. The lesion healed after rather pronounced reaction and at the present time shows a clear, level, pliable scar.

Case 18.—C. T., an old Irish woman. For the past year patient had noticed a lump growing on the right side of her neck. It had grown more rapidly in the last two or three months. When first seen she presented a soft, fungating, raised epithelioma the size of a hickory-nut, on the right side of her neck. There was little or no induration extending out into the surrounding tissues. The lesion was given one very prolonged exposure to radium, healed promptly in the usual way and the resulting scar is at present everything that could be desired.

Case 19.—T. C. S., American woman, aged 42. The past two years patient had had a little spot on the left side of her nose. A crust would form, fall off and the lesion would bleed. When seen, three months ago, the patient presented a typical, superficial epitheliomatous ulceration with pearly, hard edges about three-quarters of an inch in length by half an inch in diameter. Immediately surrounding this there was a seborrheic, crusted condition. The patient was given one prolonged massive dose of radium and her physician reported that everything had healed at the end of six weeks with an excellent scar.

Case 20.—N. R., Irish woman, aged 50. Patient first noticed a pimple over the left temporal region six years ago. Some itching existed and when scratched the lesion would scab with bleeding when the scab fell. Lesion has been treated with various plasters and caustics during the last two years. When seen, six weeks ago, the lesion comprised an area a little larger than a silver dollar, the lower half presenting a fungating ulcerating mass the size of a quarter, with a firm, indurated, pearly edge and above this several scattered, raised indurated, pearly nodules forming a creeping edge, as it were, for in this way, the patient said, the lesion had spread. A single massive exposure to radium was given to the lower ulcerating part of this lesion and, after six weeks, the lesion is entirely healed, smooth and soft, though it still is slightly discolored—a faint red. The upper part of this lesion is now under treatment.

Case 21.—B. R., Irish woman, aged 78. Twenty years ago, what were probably seborrheic warts began to be scattered over the patient's face. These have persisted and grown in several places. Two or three of them are now undergoing distinct degeneration,others still are in a simple seborrheic verrucous condition. One year ago a patch over the lower half of the nose began to be sore and the patient now has a superficial, raw, ulcerating lesion the size of a quarter with a tendency to bleed. Above this was a blackish-looking, raised, seborrheic wart the size of a five-cent piece, which was distinctly undergoing degeneration. On the left cheek also was a degenerated, seborrheic, scaly patch, ulcerated in the center, crusted and bleeding, situated on a slightly indurated and inflamed base. Four, three and two weeks ago, respectively, single massive doses of radium were administered to these degenerated lesions and the patient now is going through the usual stage of inflammation with a thick impetiginous crusting, but with little or no discomfort.

Case 22.—S. G. P., man aged 50. Lesion began several years ago on the right side of the nose about a half inch from the inner canthus of right eye. The lesion grew slowly, scabbed, and although the patient had had various forms of treatment, including Roentgen ray in small repeated doses and severe high-frequency cauterization, the lesion refused to heal. It slowly spread until, when radium treatment was begun, eighteen months ago, the lesion was a little larger than a quarter, had an ulcerated, raw center and distinctly raised, hard, pearly edges, forming a rather typical, crater-like ulcer. The lesion seemed firmly adherent to the underlying periosteum and had extended upward somewhat toward the inner angle of the eye. The patient having absolutely refused operative measures, radium was tried and short thirty-minute exposures at intervals of from three to five days were given over a period of six or seven weeks, and, although some reaction followed the later exposures that were given, very little healing effect apparently was produced and I refused to treat the patient further with radium.

I mention this case last because I am fairly convinced that had the massive-dose method of radium treatment been used on this patient instead of the small repeated-dose method, at least a healing would have resulted, whereas I am equally convinced that the small repeated-dose method, no matter how long persisted in, would not have influenced but perhaps might even have aggravated the condition. This was one of my first radium cases and, although I had abandoned the repeated-dose method of the treatment of cancer with the Roentgen ray and was then using only the massive-dose method, I did not feel that I was justified on a book acquaintance with radium in adopting that method at that time.

An analysis of these cases shows:

Three refused to heal entirely under the small repeated-dose method, even though numerous exposures were made and a slight reaction produced.

Three others recurred after short intervals when treated by the small repeated-dose method, though they had apparently entirely healed.

All the cases treated by the single or massive-dose method healed kindly without recurrence so far.

The cosmetic results in these cases have been all that could be hoped for, the scars being smooth, nearly level, pliable and showing a minimum amount of deformity.

## CONCLUSIONS

1. Radium is an efficient and satisfactory means with which to attack these lesions if used in sufficient quantity.

2. The single or massive-dose method will probably prove to be the method of choice, as it has in the hands of some of us in the Roentgen-ray treatment of these lesions.

3. It is easier to estimate this single or massive dose because we are dealing with a stable remedy emitting a constant amount of rays, which is not the case with Roentgen rays, even with the pastiles now at our disposal.

4. The cosmetic results are at least equal to those of any other form of treatment of these lesions.

5. Its ease of application, comparative painlessness, even in the inflammatory stage, and harmless appearance recommend it to patients.

6. The length of exposures can be practically determined and depends on the amount of radium and the character of its container, its distance from the lesion, the location of the lesion, the character of the lesion—whether superficial or deep—and the age, state of health and susceptibility of the patient to other rays, such as the sun's.

7. Its two disadvantages are its high cost and the length of time of exposure in the single-dose method. This latter, however, is indirectly in proportion to the amount of radium employed.

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# CHOLESTERINIZED ANTIGENS *

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In a recent article,[1] Thomas and Ivy decry the use of cholesterinized antigens in the Wassermann reaction, asserting that many positive results are obtained by them in non-syphilitic cases.

Since Dec. 1, 1913, I have been using in my Wassermann work an antigen composed of human heart-extract plus 0.4 per cent. cholesterin as advocated by Walker and Swift.[2] Some of this was very kindly furnished me by Dr. Ralph W. Webster, while the remainder was prepared in my own laboratory.

In all I have used the cholesterinized antigen in 356 tests. While this number is somewhat small from which to draw definite conclusions, it is larger than that of Thomas and Ivy, and my results have been so uniformly satisfactory that I unqualifiedly endorse the use of this antigen, even over the heads of such authorities.

In beginning the use of the cholesterinized antigen I felt that a control should be used, which was done in the first fifty tests of this series. For this control an alcoholic extract of syphilitic liver was employed.

Of these fifty tests, thirty-nine were negative with both antigens. Three were 3 plus positive with both, one 2 plus positive with both. Six were 4 plus positive with the cholesterinized antigen, five of which were 4 plus positive with the syphilitic liver extract, while one was only 3 plus positive with this antigen. In one case the test was 1 plus positive with the cholesterinized antigen and negative with the syphilitic liver extract. This case was that of a very vigorously treated paretic which had before treatment given a 4 plus positive with the syphilitic liver extract.

The 306 tests in the remainder of the series were performed with the cholesterinized antigen alone. One hundred of these tests were made on known non-syphilitic persons (that is, those who denied syphilitic infection, medical students, physicians, nurses and others), soon after the appearance of the article by Thomas and Ivy. Every one of the hundred cases gave a negative reaction.

The remaining 206 tests of this series were those performed in the routine examination of suspected or known treated syphilitics in the State Hospital for Nervous Diseases. Of these, twenty-seven were 4 plus positive, seventeen 3 plus positive, two 2 plus positive, and three 1 plus positive, while 157 were negative. The three 1 plus positive and the two 2 plus positive tests were made on vigorously treated syphilitics, who had previously given stronger tests with the alcoholic extract of syphilitic liver, while the other positives were in cases in all of which there were abundant clinical evidences of syphilis. Two cases, in particular, are striking, inasmuch as they were both cases of primary syphilis. The first test in each case was performed during the first week after the appearance of the chancre and in both was negative. In one of these cases the *Spirochaeta pallida* was demonstrated at the time the blood was taken for the Wassermann, while in the other this was impossible. Both cases, however, subsequently gave 4 plus positive Wassermann tests.

*From the foregoing summary of cases I think it is* evident that the use of cholesterinized antigen is not attended with the dire results indicated by the authors quoted above; at least this is not the case in this series.

I think that the discrepancy in the results of my work and that of Thomas and Ivy, and perhaps other investigators, may be accounted for in the titration of reagents.

In another article[3] I have pointed out the method I employ in the titration of the Wassermann reagents, which briefly is as follows:

> Absolute test conditions are imposed, that is, when complement, for example, is to be titrated, a series of tubes is set up, in each of which is placed 0.1 c.c. of a known negative inactivated serum, one unit of antigen, increasing amounts of complement, and sufficient salt solution to bring the total volume up to the required amount when amboceptor and corpuscles are subsequently added. The tubes are now incubated for half an hour at 37 C. (98.6 F.), after which one unit of previously titrated amboceptor and one unit of corpuscle suspension are added and the incubation continued one hour. The smallest amount of complement which produces complete hemolysis is determined and is one unit. In the actual test one unit and only one is used.
>
> Amboceptor is titrated in a similar manner, and here again one unit and only one is used in the test.
>
> In the titration of antigen the first requisite is that it must not produce hemolysis in an amount considerably in excess of the antigenic unit. The hemolytic value is determined by placing in a series of tubes increasing amounts of the antigen and adding to each, one unit of corpuscle suspension and sufficient salt solution to bring the total volume to the required amount, and incubating for one hour at 37 C.
>
> The other factors to be determined are the anticomplementary value and the antigenic unit.
>
> Two series of tubes are set up, and in each of one series is placed 0.1 c.c. of a known negative serum, and in each of the other series 0.1 c.c. of a known positive serum. Increasing amounts of antigen and one unit of complement are added and the tubes incubated for half an hour at 37 C. One unit of amboceptor and one unit of corpuscles are now added and the incubation continued for one hour. In the negative series the tube with the least amount of antigen which shows any hemolysis contains the anticomplementary dose, while in the positive series the tube with the least amount of antigen which shows complete inhibition of hemolysis contains the antigenic dose. The unit is the average of these two.

## CONCLUSIONS

After using cholesterinized antigen in 356 tests, fifty of which were controlled by an alcoholic extract of syphilitic liver, and one hundred of which were known negative cases, while of the remainder the positives were in cases which were clinically syphilitic, it is concluded that:

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* From the Pathological Laboratory of the State Hospital for Nervous Diseases, Little Rock.

[1] Thomas, B. A., and Ivy, R. R.: Use of Cholesterinized Antigens in the Wassermann Reaction, The Journal A. M. A., Jan. 31, 1914, p. 363.

[2] Walker, I. C., and Swift, Homer F.: A Study of the Addition of Cholesterin to the Alcoholic Extracts of Tissues Used for Antigens in the Wassermann Reaction, Jour. Exper. Med., July 1, 1913.

[3] Thompson, Loyd: Titration of Wassermann Reagents, Arch. Int. Med., to be published.

1. Owing to the ease of preparation of this antigen it is to be recommended.
2. It is slightly more delicate than other antigens, and is especially valuable in determining when a cure has been effected, as a positive with it persists after treatment for a longer time than with other antigens.
3. If the reagents are titrated properly, non-syphilitics will not give positive results.

Second and Sherman Streets.

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# HETEROPLASTIC TISSUE GRAFTING EFFECTED THROUGH ROENTGEN-RAY LYMPHOID DESTRUCTION *

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The relationship between the lymphoid tissue and the mechanism which causes the failure of heteroplastic tissue grafts has been considered in a recent report.[1] The chick embryo which lacks this defensive mechanism was shown to be an excellent host for the growth of a variety of tissues derived from foreign species.[2] These embryos, however, become as resistant as the adult if supplied with a graft of either adult chicken-spleen or bone-marrow.[3] If the deductions from these experiments are correct, it should be possible to effect heterotransplantation in the adult by lessening the activity of the lymphoid tissue. As a matter of fact this has been accomplished up to the present by two distinct methods: (*a*) by the employment of subcutaneous injections of benzol (benzene, $C_6H_6$); (*b*) by the use of the Roentgen ray. The present preliminary report relates exclusively to the second method. As regards the use of benzol; it should be added that when the experiments succeed, which is by no means always the case, because of the toxic action of the drug, heterotransplantation of mouse sarcoma into the rat has been accomplished.

## EXPERIMENTS

Series 1.—Twenty rats of the same size were selected, ten of which were exposed to Roentgen rays for five minutes daily for ten days. The twenty animals were then inoculated with grafts of the Ehrlich mouse-sarcoma. The mouse-tumor grew in the normal rats for the first few days, but growth ceased by the ninth to tenth day and retrogressed rapidly to complete absorption. The tumors in the animals treated with Roentgen rays continued to grow for some days longer. The period at which growth stopped varied considerably. Some ceased after the fourteenth day, others stopped at the fifteenth or sixteenth day. In one animal killed on the eighteenth day the tumor had attained the size of 1.8 by 1.3 by 1.2 cm. The microscopic examination showed the typical cells of mouse-sarcoma in an active state of proliferation, with numerous mitotic figures. There was a total absence of the round-cell infiltration normally associated with a tissue graft in a foreign species. This tumor was reinoculated into ten mice and gave rise to rapidly growing tumors in all the ten.

Series 2.—Ten rats of the same age were selected, of which five were subjected to Roentgen-ray treatment, five minutes a day for two weeks. The ten were then inoculated with grafts of the Ehrlich sarcoma. In the untreated animals the tumors reached their maximum size of 0.7 cm. by the ninth day, after which they quickly retrogressed to complete absorption. Among the animals treated by the Roentgen ray, two tumors stopped growing on the twelfth day and one on the thirteenth day. One tumor was still in active growth on the fourteenth day when all but a small graft was removed at operation. The remaining graft continued to grow till the nineteenth day, when the animal died of an intercurrent disease. The portion of the tumor removed at operation was inoculated into five rats which had been treated for two weeks with daily doses of the Roentgen ray. The tumors grew well in all these animals till the thirteenth day, when there was some slowing down. Two of the largest of the tumors were removed at operation and inoculated into a third series of rats which had been subjected to the Roentgen ray as in the foregoing. It is now thirty-two days since the tumor was removed from the mouse and it is still growing actively in the third series of rats. Microscopic examination of specimens removed on the twenty-fourth and twenty-seventh days show the tumors to be composed of the typical and characteristic cells of the Ehrlich mouse-sarcoma. Numerous miotic figures are present, together with evidence of vigorous tumor-growth and a total absence of the usual cellular reaction about a graft associated with the resistance to the growth of a foreign tissue in a normal animal.

The fact is well known that the Roentgen ray given in small amounts affects first and most pronouncedly the lymphoid system. The fact that heteroplastic tissues grow in animals treated with the Roentgen ray strongly suggests that it is the removal of the lymphoid barrier that makes this possible. The same conclusion was arrived at in connection with the experiments on heteroplastic tissue grafting into chick-embryos alone or with splenic or bone-marrow tissue.

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* From the Laboratories of the Rockefeller Institute for Medical Research.

[1] Murphy, James B.: A Source of Defense to Heteroplastic Tissue Grafting, The Journal A. M. A., Jan. 17, 1914, p. 199.

[2] Murphy, James B.: Transplantation of Malignant Tumors to the Embryos of a Foreign Species, The Journal A. M. A., Sept. 14, 1912, p. 874; Transplantability of Tissues to the Embryos of Foreign Species, Jour. Exper. Med., 1913, xvii, 482; Proc. New York Path. Soc., 1912, xii, 206.

[3] *A full description of these results is given in the forthcoming number of the Journal of Experimental Medicine.*

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# COMPLETE BILATERAL ISOLATED PARALYSIS OF THE SEVENTH NERVE

## DEVELOPING FOUR MONTHS AFTER THE PRIMARY INFECTION OF SYPHILIS *

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When one recalls in what close proximity the sixth, seventh and eighth nerves emerge at the base of the brain, it is hard to conceive of a lesion involving one of those nerves without affecting the others, and it is astonishing to think that any disease process could pick out the seventh nerve on each side, cause paralysis of that nerve and leave intact all the others, even the eighth, which lies in contact with it. Yet this has occurred, and there is at present such a case in the Hospital of the University of Pennsylvania.

*Present Illness.*—The patient, a white man, aged 32, came to the hospital Feb. 20, 1914, complaining of inability to move the muscles innervated by the seventh nerve on each side. He gave the following history of his present illness: About Jan. 1, 1914, while the patient was eating, he suddenly became aware of a sensation of "stiffness," as he expressed it, in the left side of his face. He continued with his meal, but the sensation of stiffness persisted and in a very short time he found that he could not move the left side of his face. The next morning the stiffness and inability to move the left side of his face were unchanged, and in addition he felt dizzy when he stooped over or moved quickly. The patient could not see clearly at a distance, although he says that he could see objects close at hand and could read for a short time, but his eyes would soon "water" and everything would become blurred. There is a history of some dimness of vision in the right eye which has been present since childhood. Otherwise the patient felt perfectly well. Two days after the onset described above, while out driving, the patient became conscious of the fact that the right side of his face felt stiff and he found that he was then unable to move that side of his face. This condition of inability to move either side of his face persisted, and finally he received some sort of electrical treatment which did not affect the symptoms. After the onset the man worked for one week and then the dizziness on stooping caused him to stop work, and he has done no work since then until one week before admission. He has no pain in his face at present, nor has he had any such pain at any time during the present illness. From the onset he had a full, heavy feeling in his head, which he says felt like "something pressing down," and which lasted for one week. At the time of admission he had a dull, aching pain in the left parietal region. The patient is able to chew his food and to swallow perfectly, and fluids do not come out through his nose. There is a buzzing sensation of some sort in his left ear. He complains of no muscular weakness in any part of his body except in his face, and he says that he walks in the dark without difficulty and never stumbles, nor has he ever noticed any sensation of walking on something soft. There is no complaint of any urinary disturbance nor has he any gastro-intestinal, renal, cardiac or pulmonary symptoms.

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* From the Neurological Department of the Hospital of the University of Pennsylvania.

*Previous Medical History.*—About Sept. 12, 1913, he had what he calls a "pimple" on the penis, which was very slow to heal under both local and internal treatment prescribed by a physician. In the latter part of December, 1913, and the first part of January, 1914, he suffered with a sore throat and a sore tongue, but there were apparently no other secondary symptoms. He has had gonorrhea. Seldom does he use any alcoholic beverage.

*General Physical Examination on Admission.*—The man is large, well built, well nourished and his face attracts immediate attention because of its absolutely expressionless appearance. His lower eyelids are everted and there is marked lacrimation, while his mouth droops, giving him a very dejected appearance. There is no drooling of saliva. He is unable to wrinkle his forehead, and when asked to close his eyes the upper lids move down about half way and stop while the lower lids remain everted. If the patient pulls the upper lids all the way down with his fingers, he is then able to raise them again. There is a total inability to wrinkle either side of his face, he cannot draw up or depress either corner of his mouth, and he cannot smile or whistle or make any movement with his lips. When asked to blow out a match the only motion of his lips is that due to the expulsion of air, and he is unable to extinguish the flame. The lower jaw can be moved up and down and sideways easily, and the tongue is readily protruded in the midline and moved freely in all directions. He had no difficulty in chewing his food. The eyes are moved freely in all directions and there is no nystagmus or exophthalmos. The pupils are equal in size and react readily and equally to light and in accommodation. The sensations of touch and pain are normally acute in the face. The biceps and triceps tendon reflexes are normal in promptness and extent, and sensation to pain and touch is normal in the hands and arms. In the lower extremities the patellar and Achilles tendon reflexes are normal on each side, and there is no ankle-clonus or upward turning of the great toe when the sole of the foot is stroked.

The sensation of pain and of touch is normal in both lower extremities. When the patient stands erect with toes and heels together there is no swaying, and no ataxia is detected by the finger-to-nose test. His gait is normal. Nothing abnormal was found on examination of the heart, lungs and abdomen. The urine examination has shown nothing abnormal.

*Blood Examination.*—The following condition was found: hemoglobin, 75 per cent.; red blood-corpuscles, 4,600,000; white blood-corpuscles, 12,800. The differential blood count was as follows: polymorphonuclear leukocytes, 84 per cent.; lymphocytes, 14 per cent.; large mononuclears, 0 per cent.; transitionals, 2 per cent.; eosinophils, 0 per cent. Feb. 21, 1914, the Wassermann reaction was tried on a specimen of the patient's blood-serum by Dr. John L. Laird and reported to be strongly positive.

*Examination of the Eyes.*—Dr. George E. de Schweinitz and Dr. Carl Williams reported the following findings: The pupils were equal and reacted normally to light and in accommodation. Vision in the right eye was slightly blurred for details and normal in the left eye. In the right eye is a faint corneal nebula. The fundus of each eye is healthy. Double orbicularis palsy was noted. Vision in the right eye is 4/150, in the left, 6/6.

*Examination of the Ears.*—Dr. Butler did not find any involvement of the eighth nerve. The drumheads were normal except for slight retraction of the left one. Before inflation hearing as tested by the tuning-fork on the right side was 9/14 and on the left side 8/14. Inflation, however, brought the hearing on the right side up to 13/14 and on the left side to 11/14. The Galton whistle was heard at 0.7 turn on each side, and ability to hear the $C_4$ fork was normal on each side. Low tones were heard at 3/4 on each side. Air conduction was found to be better than bone conduction. The Weber test was to the left and no involvement of the vestibular branch of the eighth nerve was detected by the revolving-chair test. Some congestion of the eustachian tubes was found, and this was thought to be sufficient to cause the slight diminution in acuteness of hearing. Dr. Butler concluded that there was no involvement of the eighth nerve on either side.

*The Electrical Reactions of the Facial Muscles.*—These were tested by Dr. J. W. McConnell, and it was found that the reaction to the galvanic current in the muscles of the right side of the face was in response to 5 milliamperes of current, while on the left side of the face 8 milliamperes of current were required to elicit reaction. On both sides of the face the reaction showed the vermicular, slow quality of degeneration. The serial reactions of galvanic current showed the anode closing contraction to be greater than the cathode closing contraction. There was no response on either side of the face to breaking the current. There was no reaction to stimulation by the galvanic current over the nerve. Taste sensation for sweet and salt is absent on the anterior two-thirds of the tongue.

This case, then, is certainly one of involvement of both seventh nerves below the nuclei and probably after the emergence of the nerves at the base of the brain. If the lesion were in the medulla we would find also some involvement of other tracts, but there is absolutely no evidence of such a condition. Both of the motor tracts have escaped, although almost always in syphilitic disease of both seventh nerves there is also an affection of one or both of these tracts. The sixth nerve, lying as it does quite close to the seventh, has escaped, and there is no evidence whatever to indicate that any other of the cranial nerves is involved. Even the eighth nerve, which is in absolute contact with the seventh at its emergence, has entirely escaped on both sides.

Such a paralysis as we have in this case would be very interesting if it affected the nerve only on one side, but here we have both seventh nerves involved, and they alone of all the other cranial nerves, and furthermore, each is affected in all of its branches.

As a rule, cerebral syphilis is an insidious condition, creeping on slowly; but in this case its onset was very rapid and the time of its appearance early, coming with the secondary symptoms. Then again, the nerve on the right side was involved only two days after the paralysis of the left side, the whole clinical picture being complete in less than three days, and it had neither progressed nor receded up to the time of the patient's coming to the hospital. So this astonishing rapidity of onset and progression after the infection is one of the most remarkable features of the case.

Although such a precipitate onset is most unusual, yet it does occur, and indeed there is in the records of the dispensary for nervous diseases of the Hospital of the University of Pennsylvania and reported by Dr. William G. Spiller, another case showing just this feature. The history is in brief as follows:

The man, a negro, aged 22, on about Jan. 19, 1909, that is, two months before admission, had what he called a "chancre" on the penis. Here, as in the other case, the history of luetic infection is clear. Approximately one month after this "chancre" was acquired and while washing his face, he discovered that he could not close his right eye. On examining his face with the aid of a mirror he was surprised to find that his mouth was twisted to the left side. This paralysis seems therefore to have been quite as sudden in onset and to have followed the initial lesion even more quickly than in my case. Ten days after the paralysis of the right side of his face he became aware that the left side of his face was similarly affected, and when he presented himself at the dispensary he was unable to wrinkle either side of his forehead and could not completely close his eyelids.

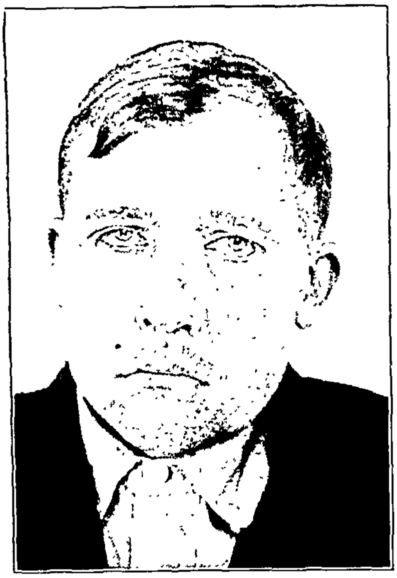

Fig. 1.—Patient at rest.

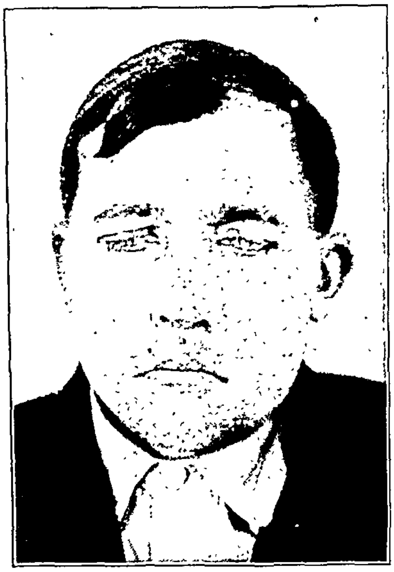

Fig. 2.—Patient attempting to close his eyes and draw up the corners of his mouth before any effects of treatment were noticed.

The involvement of the opposite facial nerve in this case was not so rapid as in my own case, but the paralysis was just as complete on both sides. There was an entire absence of the nasolabial fold on each side, and the man was not able to elevate either corner of his mouth, which hung open at all times. Food collected in both cheeks and also back of the lower lip. There was no loss of sensation for pain and touch in the face, nor any pain. The ocular movements were prompt and free in all directions and the pupils were equal in size and reacted readily and equally to light and in accommodation. Biceps, patellar and Achilles tendon reflexes were all found to be exaggerated on both sides, and a bilateral ankle-clonus was found. There was no upward turning of the great toe on the stroking of the sole of either foot.

Tested by the electric current there was found to be no contraction of the muscles on either side of the face to the faradic current when applied over the facial nerve or when applied over the muscles themselves, except a slight contraction of the frontalis muscle. There was no contraction of the facial muscles to stimulation over the nerves by a galvanic current, but a tardy response was obtained when applied over the muscles. Anode closing contraction was nearly equal to cathode closing contraction on both sides of the face.

In Spiller's case there was no history of secondary symptoms of syphilis, but one or two weeks before the onset of the paralysis a stiffness of the neck was noted. Of these two cases the first is the one to which I wish to call particular attention, not only because it presents a very interesting and uncommon clinical picture, but also because of the fact that under treatment there has been some return of power in the muscles affected.

*Treatment in Author's Case.*—Antisyphilitic treatment was begun Feb. 25, 1914, and since that time the patient has received two intravenous injections of neosalvarsan in doses of 0.45 gm. each. This was supplemented by inunctions of unguentum hydrargyri, 1 dram a day. March 16, 1914, the salicylate of mercury was substituted for the ointment and given by intramuscular injections in doses of 1/10 grain every fourth day. The patient has now had three of these injections. Galvanic electricity is also being used daily over the muscles affected.

At present he is able to close his eyes more completely than when he was admitted, and can make slight upward motion at both corners of his mouth.

[Since the writing of this report the patient has had a further manifestation of secondary syphilis in an extensive loss of hair from his head. He has also had a remarkable return of power in his facial muscles and, at present, can draw up the corners of his mouth to almost a normal degree. He has well-marked nasolabial folds and can wrinkle his forehead very slightly. He has had a fourth injection of 0.45 gm. neosalvarsan.]

In this case I would call attention especially (1) to the clear history of syphilitic infection corroborated by the Wassermann reaction; (2) to the nice selection of each seventh nerve in all its branches, with the escape of all other cranial nerves, and of the motor tracts which are almost always affected in syphilitic paralysis of the seventh nerve, and (3) to the rapidity of onset after the infection and the short interval that elapsed between the paralysis of the seventh nerve on the left and on the right side.

I am indebted to Dr. William G. Spiller for his aid in the study and preparation of this case.

3400 Spruce Street.

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**Our Duty to Others.**—The lot of the laborer is still abandoned to the blindest individualism, and among the ruling classes the conviction has not yet penetrated that the decadence of the physical strength of the worker, the diminution of the capacity for work, the premature deaths, the degeneration of the race, the chronic diseases which require long periods of treatment in hospitals and asylums, cost the general economy of the country more than the expense which would be incurred in stamping out the evil.—Lugaro, Problems in Psychiatry.

# TREATMENT OF GONORRHEA AND ITS COMPLICATIONS BY ANTIGONOCOCCIC SERUM

## A PRELIMINARY REPORT OF TWENTY-FOUR CASES *

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In 1907, John C. Torrey[1] of the Loomis Research Laboratory of New York, read a paper before the American Congress of Physicians and Surgeons in Washington, D. C. This was an original communication describing an antigonococcic serum, prepared by injecting dead and virulent gonococci into uncastrated rams. The indications for the application of the serum were the following:

1. Those infections arising by direct extension, that is, in the prostate, bladder and epididymis in the male, and in the uterus and fallopian tube in the female.
2. Those infections arising by extension through the lymphatics or the circulatory system. These include arthritis, iritis, endocarditis, pleuritis and meningitis.

The dose as recommended at that time was 2 c.c, given every three or four days, at the discretion of the physician. Later, Herbst,[2] Belfield[3] and Schmidt[4] of Chicago and Swinburne[5] of New York reported their experience. All seem to have agreed in regard to the value of the treatment in rheumatism, but in regard to other complications, results were somewhat conflicting.

Previous to 1911, I had repeatedly given as large a dose as from 6 to 12 c.c. in two days, in cases of acute epididymitis, with surprising results. In 1911, I had a beautiful illustration of the application of this serum in a case of gonorrheal rheumatism accompanying prostatic infection: Case 15. At this time, 16 c.c. were given in three days. A complete cure was obtained in two weeks.

Stimulated by the work of Theobald Smith[6] and Rufus Cole[7] in antipneumococcic serum and George Weaver[8] in antistreptococcic serum, in September, 1913, I made a careful survey of my cases already treated and determined to adopt a larger dose and

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* Read before the Chicago Medical Society, March 9, 1914.

[1] Rogers, John, and Torrey, John C.: The Treatment of Gonorrheal Infections by a Specific Antiserum, THE JOURNAL A. M. A., Sept. 14, 1907, p. 918.

[2] Herbst: Illinois Med. Jour., 1908, xiii, 689.

[3] Belfield, Illinois Med. Jour., 1908, xiii, 689.

[4] Schmidt: Therap. Gaz., 1909, xxvi, 609.

[5] Swinburne, G. K.: Tr. Am. Urol. Assn., 1909, iii, 170.

[6] Smith, Theobald: An Attempt to Interpret Present-Day Uses of Vaccines, THE JOURNAL A. M. A., May 24, 1913, p. 1591.

[7] Cole, Rufus: Treatment of Pneumonia by Means of Specific Serums, THE JOURNAL A. M. A., Aug. 30, 1913, p. 663.

[8] Weaver, George H.: Antistreptococcus Serum, THE JOURNAL A. M. A., Aug. 30, 1913, p. 661.

DETAILS IN TREATMENT OF TWENTY-FOUR GONORRHEA

| Case | Diagnosis | Duration | Previous Treatment | Gonococci Present | Symptoms | Urine Glasses * | Complement Fixation |
|---|---|---|---|---|---|---|---|
| 1. R. | Acute anterior and posterior urethritis. | 8 days | None | Yes | Frequent and painful urination. | I tr.<br>II tr. | Negative |
| 2. C. | Same | 2 weeks | None | Yes | Same | Same | Negative |
| 3. J. P. | Same | 4 weeks | Hand injec'n. | Yes | Discharge | Same | Positive |
| 4. E. R. | Acute anterior urethritis | 1 day | None | Yes | Discharge and painful urination. | I tr.<br>II cl. | Negative |
| 5. E. McE. | Same | 4 days | None | Yes | Same | Same | Negative |
| 6. J. S. | Chronic urethritis with fistula. | 8 months | Yes | Yes | Infected sebaceous cyst | Same | Negative |
| 7. Dr. S. | Urethritis totalis with prostatitis. | 4 weeks | Yes | Yes | Discharge and severe strangury. | I tr.<br>II bloody | Positive |
| 8. D. D. | Same | 18 months | Yes | Yes | Discharge | I tr.<br>II tr.<br>III massage tr | Positive |
| 9. C. G. | Urethritis totalis prostatitis with stricture. | 2 years | Yes | Yes | Discharge | Same | Positive |
| 10. B. G. | Urethritis totalis and double epididymitis. | 3 days | None | Yes | Referable to epididymis | I tr.<br>II tr. | Positive |
| 11. H. A. | Prostatic abscess | 2 days | Yes | Yes | Acute retention urine 28 hours. | I tr.<br>II tr. | Positive |
| 12. W. S. | Epididymitis and rheumatism, acute. | 3 months | Yes | Yes | Discharge, epidid. Rheumatism right and left knee. | I tr.<br>II tr. | Positive |
| 13. J. P. | Rheumatism, acute | 6 weeks | None | Yes | Rheumatism of right wrist and ankles. | I tr.<br>II tr. | Positive |
| 14. G. D. | Rheumatism, acute | 2 weeks | Internal | Yes | Large swelling of left knee; discharge. | I tr.<br>II tr. | Positive |
| 15. E. R. | Rheumatism, acute | 3 weeks | None | Yes | Severe pain in left hip; discharge. | I tr.<br>II cl.<br>III massage tr | Not made |
| 16. A. G. | Rheumatism, acute | 3 weeks | Yes | Yes | Discharge and swelling of *right ankle.* | I tr.<br>II tr.<br>III tr. | Positive |
| 17. J. McG. | Rheumatism, chronic | 4 months | Yes | Yes | Knees and ankles quite tender; discharge. | I tr.<br>II tr.<br>III tr. | Positive |
| 18. G. L. E. | Rheumatism, chronic | 6 months | Irrigations, mud-baths. | Yes | Pains in heels and toes; discharge. | I tr.<br>II tr.<br>III tr. | Not made |
| 19. G. L. G. | Rheumatism, chronic | 4 months | Hand injections; mud-baths. | Yes | Pains in right shoulder and left ankle; discharge. | I tr.<br>II cl.<br>III massage tr | Positive |
| 20. J. G. | Rheumatism, chronic | 3 months | Bier hyperemia, injections. | Yes | Marked swelling right knee. | I tr.<br>II tr.<br>III tr. | Positive |
| 21. J. H. | Endometritis, chronic | Indefinite | None | Yes | Leukorrhea for three or four years. | No bladder symptoms. | Positive |
| 22. M. S. | Endometritis, chronic | Indefinite | None | Not present | Leukorrhea | Same | Positive |
| 23. M. O. | Endometritis, chronic | 6 months | Yes | Yes | Leukorrhea | Same | Positive |
| 24. M. S. | Endometritis, salpingitis, chronic. | Indefinite | None | Yes | Pelvic pain; confined to bed; leukorrhea. | Same | Positive |

* tr. = turbid: cl. = clear. † Second and conclusive examination.

an intravenous administration as recommended by Cole and Weaver. As the complement-fixation test for gonorrhea is a reliable guide for systemic invasion. I selected this method of diagnosis as a key to the administration of the serum.

Of the twenty-four cases herein reported, three are from the service of Drs. Frank E. Simpson and Frederick G. Harris at the Cook County Hospital, and one is from the practice of my assistant, Dr. L. D. Smith. The other twenty are from my clinic at the Post-Graduate Medical School and my own private practice. The antigonococcic serum used here was obtained partly from the experimental department of Parke, Davis & Co., and from the open market. The two seem to be identical.

As suitable facilities for hospitalizing this class of cases were not available, no apology is offered for absence of temperature charts and complete blood-pictures. At the beginning of the work, a daily leukocyte count was made before, during and for a few days after the injections; but as the findings were of no actual value, the routine was abandoned.

As the proper management of every case of specific urethritis is controlled by daily microscopic examinations of the discharge, particular attention has been given to this valuable aid, as will be seen from the photomicrographs. The subsequent complement-fixation tests as a final conclusion as to whether or not a cure has been effected, while not at all complete in the table, will be concluded as soon as it is possible to reexamine the cases.

Patients 1 and 2 are clinic patients whom I sent into the hospital under special arrangement. Each received 12 c.c. of antigonococcic serum administered intravenously on three successive days. There was no increase of leukocytes or temperature rise during their three days' sojourn in the hospital, and as far as I know there was no serum reaction. Likewise there was not the slightest improvement.

As complications in ambulatory patients were feared, the remainder of the injections were given deep in the gluteal region, intramuscularly. I believe, however, that the intravenous administration, when feasible, would be followed by a more rapid recovery with a possibility of using less serum.

The same conclusions were drawn from Cases 4 and 5, as the infection was confined to the narrow urethral domain with the absence of the complement-fixation test.

Case 6 (Figs. 1, 2 and 3), with a negative reaction, is the only other exception. This patient received 36 c.c. intramuscularly, and this passive immunity was stimulated by three injections of gonococcus vaccine with a prompt and complete cure. This patient presented an abnormality in the way of a sebaceous cyst at the junction of the glans penis and urethra, and

PATIENTS WITH ANTIGONOCOCCIC SERUM

| Antigonococcus Serum | Subsequent Symptoms | Serum-Sickness | Discharge | Complement Fixation † | Remarks |
|---|---|---|---|---|---|
| 36 c.c. intravenously. | No improvement | None | No improvement. | Not made | Clinic patient. |
| Same | No improvement | None | No improvement. | Not made | Clinic patient. |
| 36 c.c. intramuscularly. | No improvement | Marked | No improvement. | Not made | Hemorrhagic urticaria. |
| Same | No improvement | Marked | No improvement. | Not made | Serum-sickness mistaken for scarlet fever by family physician. |
| Same | No improvement | Slight | No improvement. | Not made | Treatment seemed to lower resistance. |
| Same | Rapid improvement with cure. | Marked | Disappeared | Not made | Patient confined to bed with arthritis and extensive itching. |
| 18 c.c. intramuscularly. | Rapid improvement | Slight | Disappeared | Not made | Discharge returned with gonococci; dose too small. |
| 36 c.c. intramuscularly. | Rapid improvement | Slight | Disappeared | Positive | Under treatment for 2 months previous to injection. |
| Same | Rapid improvement | Marked | Gonococci disappeared | Negative | Opportunity for many examinations. |
| Same | Rapid improvement | Slight | Same | Negative | Saline irrigations given. |
| 12 c.c. intramuscularly. | Rapid improvement | Slight | Gonococci disappeared, then reappeared. | Positive | Dose too small. |
| 36 c.c. intramuscularly. | Marked improvement; epididymitis, rheumatism. | Slight | Gonococci disappeared | Not made | Ward patient, Cook County Hospital, ready for discharge. |
| Same | Rapid improvement | Marked chill and vomiting | Not obtainable | Not made | Symptomatically cured in three weeks; hospital patient. |
| Same | Extremely rapid improvement. | Slight | Gonococci disappeared | Not made | Elevated railroad guard; went to work one week after injection. |
| 16 c.c. intramuscularly. | Rapid improvement | None | Gonococci disappeared | Not made | Patient completely cured in two weeks. |
| 18 c.c. intramuscularly. | Marked improvement, but relapsed. | None | No improvement | Not made | Dose too small. |
| 36 c.c. intramuscularly. | Marked improvement | Marked | Not obtainable | Not made | Patient symptomatically cured in two weeks; hospital patient. |
| 18 c.c. intramuscularly. | Slow improvement | None | Gonococci disappeared | Not made | Dose too small. Discharged at end of two months. |
| Same | Slow but complete disappearance. | None | Same | Negative | Dose too small. Discharged at end of two months. |
| Same | Slight improvement | None | Disappeared | Not made | Dose too small. Symptoms still present when patient left. |
| 36 c.c. intramuscularly. | Discharge, only Gram-positive. | Severe; confined to bed. | Disappeared | Negative | Ideal recovery. |
| Same | None | Slight | Disappeared | Not made | Patient known to have infected another before treatment. Did not after treatment. |
| Same | Rapid improvement | Marked | Disappeared | Not made | Patient has not infected husband since treatment. |
| 45 c.c. intramuscularly. | Rapid improvement | Very severe. | Greatly improved | Not made | Patient treated too recently for complete report. |

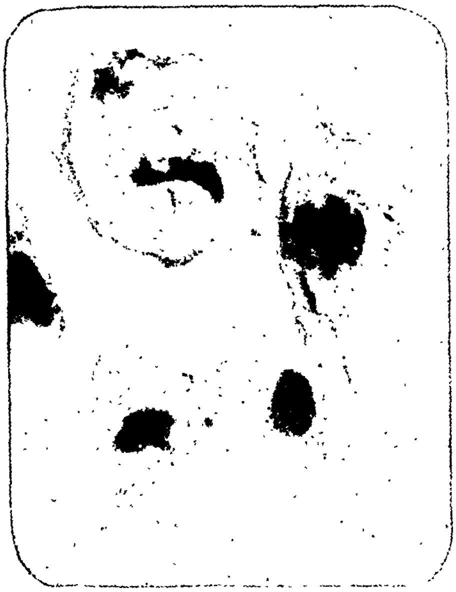

Fig. 1 (Case 6).—Appearance of discharge the day before injection. Absence of gonococci.

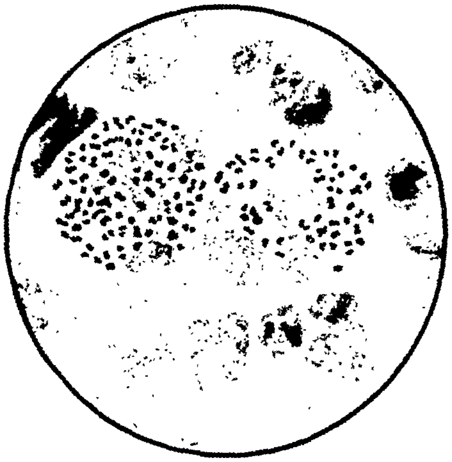

Fig. 2 (Case 6).—Appearance of discharge on the day following the three injections. Fourth day of observation. Gonococci present.

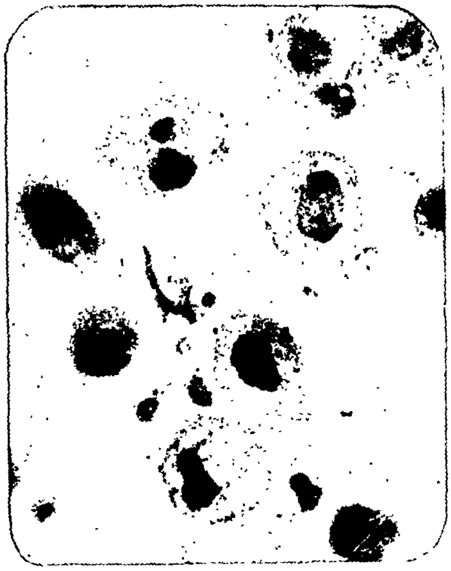

Fig. 3 (Case 6).—Appearance of discharge ten days later. Serum fortified by gonococcus vaccine, as suggested by Dr. Theobald Smith. Large number of epithelial cells, few leukocytes, no gonococci.

had been under observation nine months with a previous operation.

In all the rest of the series in which the quantity of the serum given has been 36 c.c. or over, the results have been prompt and very encouraging.

Invariably when the amount of serum injected was under 20 c.c., the improvement was slow or a relapse occurred, as shown in Cases 7, 11, 15, 16, 18, 19 and 20.

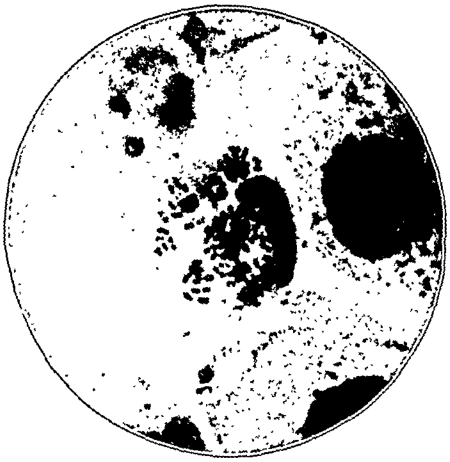

Fig. 4 (Case 9).—Appearance before injection. Large number of gonococci present.

Case 11 is most instructive, as will be seen by the photomicrographs. This patient received his first injection of 12 c.c., but through a misunderstanding did not receive the two subsequent injections. Later, the microscopic examinations of the discharge proved so conclusively the value of the serum that they are herewith given in detail (Figs. 7, 8 and 9).

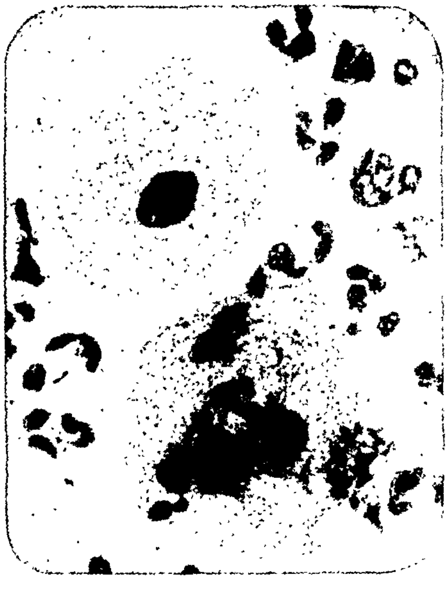

Fig. 5 (Case 9).—Appearance four days later. Epithelial cells and leukocytes. No gonococci.

I thought that the one injection of 12 c.c. had cured the patient, but I was very much disappointed to note a recurrence, as seen in the last photomicrograph. I have not the slightest doubt that had the full 36 c.c. been given, the patient would have had a prompt and permanent result.

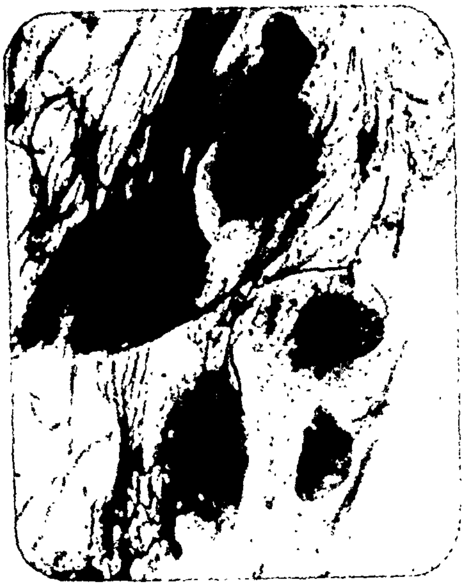

Fig. 6 (Case 9).—Appearance nine days later. Epithelial cells and mucus; no gonococci.

Often patients who had been injected with 16 and 18 c.c. had shown marked improvement from the point of view of the discharge, but later invariably relapsed. My reasons for giving from 36 to 45 c.c. of serum as sufficient quantity to produce a curative effect are wholly arbitrary and based on my previous experience. In every case in which 36 c.c. or over have been given, no treatment has been instituted except prostatic massage and urethral massage over a sound. Case 10, however, was an exception, as the patient received cleansing urethral irrigations of normal saline solution.

For the serum-sickness, free catharsis, with salines, together with bland salves, was given on the slightest appearance of urticarial eruptions.

### CONCLUSIONS

1. The complement-fixation test is a reliable guide in the administration of the serum. When the test is negative, the serum should not be used.

2. The intensity of the positive complement-fixation test offers a reliable guide as to whether or not the serum will be efficient, as the efficiency and intensity are in direct proportion.

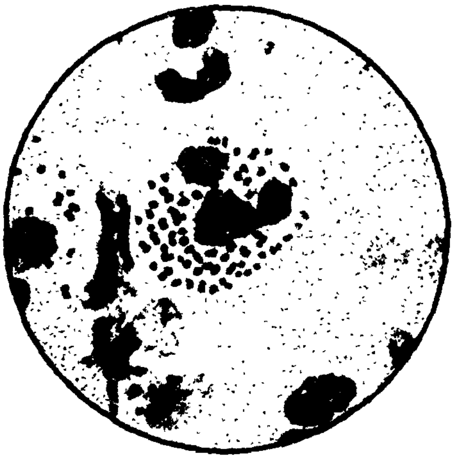

Fig. 7 (Case 11).—Appearance of discharge before injection. Gonococci present.

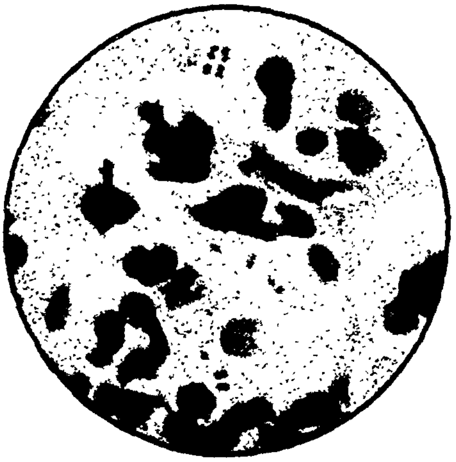

Fig. 9 (Case 11).—Twenty-one days later. Recurrence showing gonococci appearing again. Dose too small.

3. The amount injected should be at least from 36 to 45 c.c., administered intramuscularly, from 12 to 15 c.c. a day, for three days.

4. Serum-sickness, if distressing, should not be alarming.

5. A negative complement-fixation test after two or three months shows a complete cure.

32 North State Street.

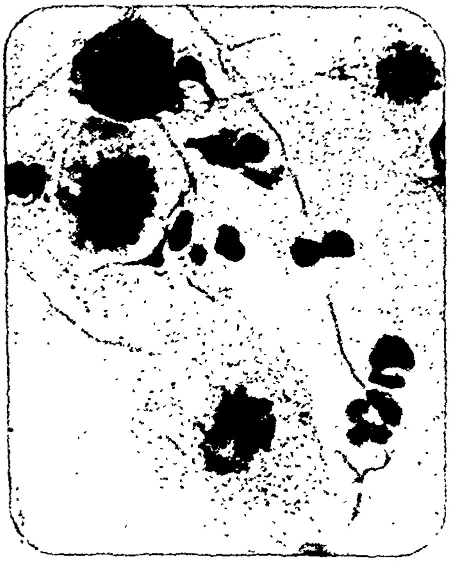

Fig. 8 (Case 11).—Three days afterward. Epithelial cells and leukocytes. No gonococci present.

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**Report on Tuberculosis.**—The annual report of the Association of Tuberculosis Clinics shows that there were 16,016 new cases of tuberculosis in Greater New York in 1913 and that the twenty-nine clinics of the association showed an attendance of 34,861. The records of the Department of Health show a more or less constant total of 30,000 registered cases, while its report for last year showed 22,761 new cases, including 6,000 not found. The number of children under clinic care increased from 1,780 in 1909 to 8,392 in 1913. In 1909 there were 41,870 visits of nurses and in 1913, 84,305. The report assumes that the gains in clinic work show a more complete and efficient working of the district system, recognition of the value of preventive work with children and that definite results have followed educational propaganda.

# AN INVESTIGATION OF THE CAUSES OF FAILURE IN COW-POX VACCINATION

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BERKELEY, CAL.

This paper is the record of an investigation of the causes of failure in the cow-pox vaccination of persons entering the University of California with no visible evidence of a previous vaccinia.

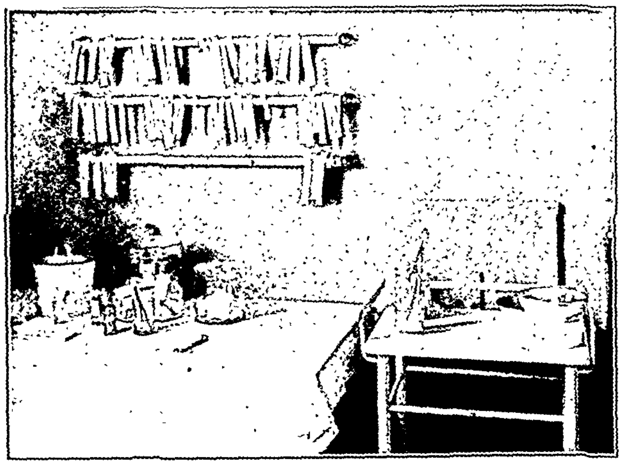

Fig. 1.—Vaccination equipment. On the stand in front of the gas-burner is a glass containing the scarifying chisels. The virus is kept in a vial in the bowl, which contains cracked ice. The covered dish contains sterile toothpicks, which are handled by means of the dressing-forceps. Dressings are shown on the table to the left of the stand.

## VACCINATION PREVIOUS TO THE BEGINNING OF THE INVESTIGATION

Regulations: All intrants not showing a vaccination scar were vaccinated. Failure to "take" resulted in a repetition of the vaccination twice during the first term, and once every succeeding term during residence at the university.

Technic: The arm was scrubbed with soap and sterile water, rinsed with alcohol and dried with cotton. An area about 5 mm. square was scarified with a dry vaccine point, which was then wiped on, the serum exuding from the scarified spot. A gauze square was then applied to the wound and was secured by four strips of adhesive tape. Verbal instructions were given the person regarding the protection of the arm, and return for the renewal of dressings.

TABLE 1.—VACCINATIONS, ACADEMIC YEAR 1910-1911

| Result | Intrants | | | | | Old Students | | | All Vaccinated | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Insertions 1st | Insertions 2d | Insertions 3d | Total | Per Cent. | Insertions 4th or Over | Total | Per Cent. | Total | Per Cent. |
| Take ...... | 166 | 75 | 19 | 260 | 86.8 | 0 | 0 | 0 | 260 | 78.4 |
| Fail ...... | 9 | 2 | 30 | 41 | 13.2 | 32 | 32 | 100 | 73 | 21.6 |

Results: Table 1 shows the result of vaccinations performed by this method during the academic year 1910-1911.

## INVESTIGATION OF THE CAUSES OF FAILURE

The results shown in Table 1 are typical of the period previous to the beginning of the investigation. The opening of each semester brought a number of old students to be vaccinated before study lists could be approved for the ensuing period. As may be inferred, "takes" among these chronic "failures" were rare, and the administration of revaccination became more difficult with the steady growth of the university. In the absence of a scar, however, revaccination was continued in the hope of securing definite evidence of immunity.

With a desire to simplify the administration of revaccination, an investigation of the causes of failure was begun in August, 1911. This investigation was divided into three parts:

1. Development of a uniform technic.
2. Investigation of virus.
3. Investigation of alleged immunity against cow-pox.

### *1. Development of a Uniform Technic*

Preparation: The arm was scrubbed with ether, which evaporated rapidly and eliminated the necessity of drying.

Scarification: An attempt was first made to follow the technic described by Pirquet,[1] which consists of rotary scarification by means of a rounded blunt vaccination chisel through a drop of virus placed on the skin. It was found more satisfactory, however, to scarify the skin by the rotation of a sharp square-cornered dental scaling-chisel, which removed a small circle of epidermis 2 mm. in diameter, without bruising the tissue.

Application of Virus: As it was found difficult to gage the depth of scarification through a drop of opaque fluid, the virus was applied to the scarified spots by means of a sterile wooden toothpick. The amount adhering to a flat-ended toothpick dipped into glycerinated virus was sufficient for the inoculation of the three scarified spots constituting a vaccination.

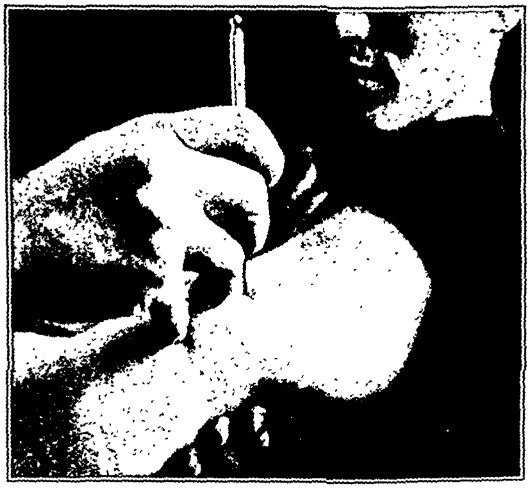

Fig. 2.—Rotary scarification by means of the modified von Pirquet scarifier.

Dressing and Subsequent Care: No change was made in the method of dressing except that the return date (five days after vaccination) was stamped on the adhesive tape. A printed card of instructions regarding the care of the vaccinia replaced the verbal directions formerly given. No antiseptics, salves or shields were used. On the tenth day, when area formation normally occurs, a few persons complained of soreness in the arm. This was much relieved by the application of a compress, kept moist with 50 per cent. alcohol. The inflammation subsided in twenty-four hours. In the absence of large scarified spots there were no "bad" arms.

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[1] Pirquet: Klinische Studien über Vakzination und vakinale Allergie, Vienna, F. Deuticke, 1907.

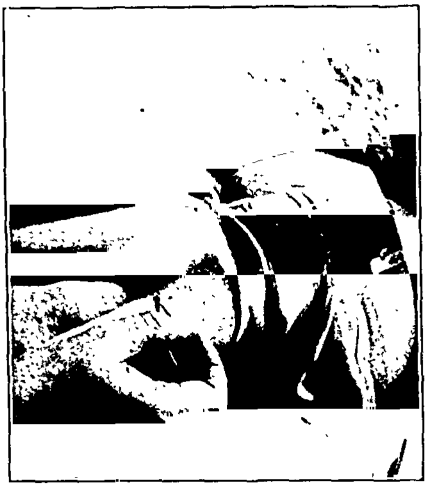

Fig. 3.—Applying virus by means of a sterile toothpick.

Area formation on the tenth day is evidence that the growth of the colony of vaccine organisms has been arrested by the antibodies which have been formed by the stimulation due to the organism, or in other words that immunity has been established.

The practice, advocated by Dyer,[2] of destroying the colony by opening the vesicle and applying phenol (carbolic acid) before area formation occurs, naturally results in a reduction of the size of the dose of vaccine organisms. Immediate revaccination in the cases in which the dose has been insufficient would produce a vesicle. Revaccination when a condition of active immunity exists would only result in the reaction of immunity as hereinafter described.

Records: A card index was kept of all vaccinations, and notices were sent to those persons not reporting by the end of the tenth day following the vaccination. Disregard of the notices resulted in termination of the student's registration in the university.

Table 2 shows the results of vaccinations by the modified Pirquet technic during the first term of the academic year 1912-1913.

TABLE 2.—VACCINATIONS, AUGUST-DECEMBER, 1912

| Results | Intrants | | | | | Old Students | | | All Vaccinated | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Insertions 1st | Insertions 2d | Insertions 3d | Total | Per Cent. | Insertions 4th or Over | Total | Per Cent. | Total | Per Cent. |
| Take .. | 259 | 3 | 0 | 262 | 89.8 | 5 | 5 | 14.7 | 267 | 82 |
| Fail ... | 1 | 0 | 29 | 30 | 10.2 | 29 | 29 | 85.3 | 59 | 18 |

A comparison of Tables 1 and 2 gives the following points in favor of the modified Pirquet technic:

1. The results are more uniform. On first insertion there were 95.8 per cent. of all takes as contrasted with 63.8 per cent. by the old method.
2. The percentage of failure is lower. There were 10.2 per cent. of failures for intrants and 18 per cent. for all vaccinated, as against 13.2 per cent. for intrants and 21.6 per cent. for all vaccinated by the old method.

In addition to the results shown by statistics there are certain other advantages.

1. Safety. Cross scarification, which is forbidden by law in Germany, favors the growth of anaerobic bacteria under the crust which forms on the area of abrasion, where the resistance is lowered by the action of the vaccine organism. The unsightly scars, and the tales of "awful" takes so common among the American vaccinated, are witnesses of appalling ignorance of this fact. The circular scarification gives absolute control of dosage and there is no tendency to confluence of the vesicles.
2. Economy. With 1 c.c. of glycerinated virus 285 vaccinations have been performed.
3. Absence of shock. Owing to the speed of scarification, the depressant psychic effect of the slow scratching by point or needle is eliminated.

A final change in the technic was made in August, 1913, by the use of chisel with a carbon steel point which could be dipped into alcohol and flamed without affecting the cutting edge. The dental chisels formerly used had been kept in compound solution of cresol and rinsed in sterile water before each vaccination, and it was believed that some of the failures might be traced to the antiseptic effect of a residual quantity of compound solution of cresol adhering to them when applied to the arm. The use of alcohol for cleansing the arm was also resumed.

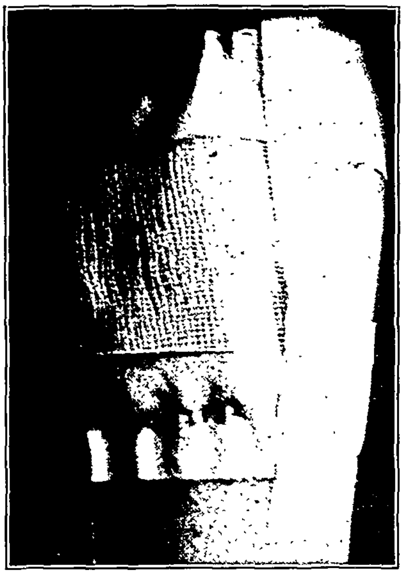

Fig. 4.—Dressing of gauze and four adhesive tapes, one of which is stamped with the date for return.

## 2. *Investigation of Virus*

The percentage of failure having been somewhat reduced by uniformity of technic, the next step was an investigation of the virus.

Following a visit to the Vaccine Laboratory of the New York Health Department, we adopted the suggestion of Dr. F. S. Fielder of that institution that virus containers be kept in cracked ice. The New York Vaccine Laboratory produces a virus which is never more than four successive transfers from a human case of vaccinia, and is guaranteed for 100 per cent. of takes in primary vaccination. Through the kindness of Dr. Fielder, the university was supplied with three 1-c.c. vials of this virus for comparison with the product heretofore used. The vials of virus were shipped from New York in a vacuum bottle, and after removal from the bottle were kept iced until used.

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[2] Dyer: The Way to Vaccinate, Am. Jour. Trop. Dis. and Prev. Med., 1913, i, 425.

In Table 3 the two New York vials No. 2180 and 2181 have been designated by the letter "N." The revaccinations were performed with New York vaccine No. 2182, which is designated "N. Y." A 1-c.c. vial of fresh virus produced locally was used for comparison. In the tables it is designated by the letter "C." A few vaccinations were performed with what is known as a "green" virus, being a more recent production than usually marketed. This virus is designated by the letters "C. S." These two viruses were originally derived from small-pox cases, though modified by several passages through calves.

TABLE 3.—COW-POX VACCINATIONS, JANUARY-MAY, 1913: REACTIONS GROUPED ACCORDING TO CHARACTERISTICS OF SCAR AND VIRUS USED

| | Virus | Vaccinia No. | Vaccinia % | Vaccinoid No. | Vaccinoid % | Failure No. | Failure % |
|---|---|---|---|---|---|---|---|
| No scar: | | | | | | | |
| Never vac. ..... | C | 35 | 90 | 2 | 5 | 2 | 5 |
| | N | 3 | 100 | .. | .. | .. | .. |
| Vac. No scar... | C | 53 | 52 | 18 | 18 | 30 | 30 |
| | N | 12 | 24 | 12 | 24 | 27 | 52 |
| Age of scar: | | | | | | | |
| Under 10 years.. | C | 33 | 11 | 110 | 39 | 141 | 50 |
| | N | 16 | 43 | 11 | 30 | 10 | 27 |
| 10 to 20 years.. | C | 46 | 12 | 153 | 39 | 196 | 49 |
| | N | 15 | 31 | 18 | 37 | 16 | 32 |
| Over 20 years... | C | 34 | 29 | 33 | 28 | 49 | 43 |
| | N | 14 | 70 | 4 | 20 | 2 | 10 |
| Size of scar: | | | | | | | |
| Under 15 mm... | C | 58 | 14 | 152 | 35 | 220 | 51 |
| | N | 26 | 46 | 19 | 34 | 11 | 20 |
| 15 to 20 mm.... | C | 31 | 14 | 89 | 41 | 96 | 45 |
| | N | 9 | 35 | 9 | 35 | 8 | 30 |
| Over 20 mm.... | C | 19 | 17 | 44 | 39 | 50 | 44 |
| | N | 6 | 38 | 3 | 19 | 7 | 43 |
| Character of scar: | | | | | | | |
| Pitted .......... | C | 22 | 10 | 82 | 36 | 125 | 54 |
| | N | 5 | 28 | 6 | 33 | 7 | 39 |
| Keloidal ........ | C | 21 | 13 | 73 | 41 | 70 | 43 |
| | N | 11 | 50 | 6 | 27 | 5 | 23 |
| Smooth .......... | C | 44 | 20 | 93 | 40 | 93 | 40 |
| | N | 22 | 47 | 17 | 36 | 8 | 17 |

Observations completed:

| | |
|---|---|
| Virus C | 935 |
| Virus N | 160 |
| Total | 1,095 |

A comparison of Viruses C and N in Table 3 shows that, with one exception, the percentage of reactions characterized by sufficient vesicle formation to be diagnosed as vaccinias is higher for the N virus, while the percentage of failure is correspondingly lower. The exception to this rule is found in the reactions of those persons having no scar though admitting previous vaccination. At first glance it appears that the N virus is here credited with a high percentage of failure. This percentage, however, is influenced by the fact that all unscarred old students who reported three or more failures in the university, and were usually highly immunized, were vaccinated with Virus N, while intrants giving a history of previous failures were vaccinated with Virus C.

Tables 4 and 5 show a reasonable consistency on the part of each virus under observation. The number of reactions secured by immediate revaccination of the C failures with N and N. Y. virus is a further favorable comment on the New York method of preparation, which as before stated consists essentially in permitting only four transfers from human vaccinia case to human vaccination subject.

TABLE 4.—COW-POX VACCINATIONS, JANUARY-MAY, 1913: REACTIONS OBTAINED BY REVACCINATION OF PERSONS FAILING AFTER FIRST VACCINATION OF THE SEMESTER

PERSONS WITH NO SCARS

| Failing Virus | Revaccination Virus | Vaccinia | Vaccinoid | Failure |
|---|---|---|---|---|
| C | C | .. | .. | 1 |
| | C. S. | .. | .. | 4 |
| C | N | 3 | 5 | 9 |
| | N. Y. | .. | .. | 2 |
| N | N | .. | 1 | 3 |
| | N. Y. | .. | 3 | 9 |
| N | C. S. | .. | 3 | 3 |

PERSONS HAVING SCARS

| Failing Virus | Revaccination Virus | Vaccinia | Vaccinoid | Failure |
|---|---|---|---|---|
| C | C | 1 | 1 | 12 |
| | C. S. | 1 | 3 | 17 |
| C | N | 9 | 32 | 68 |
| | N. Y. | .. | 6 | 6 |
| N | N | 1 | .. | 6 |
| | N. Y. | .. | .. | 1 |
| N | C. S. | .. | .. | 1 |

A summary of Tables 3, 4 and 5, with due allowance for twenty-four persons failing twice during the academic year, gives 15 per cent. of failure in unscarred persons vaccinated during the second semester, and an average of 16 per cent. of failure for the academic year 1911-1912.

### 3. *Investigation of Alleged Immunity against Cow-Pox*

By attention to the technic and virus, the failures in unscarred persons have been reduced from 21 to 16 per cent. There remains still the question of alleged natural immunity to cow-pox vaccination.

TABLE 5.—COW-POX VACCINATIONS, JANUARY-MAY, 1913: REACTIONS OBTAINED BY THIRD VACCINATION OF PERSONS FAILING AFTER FIRST AND SECOND VACCINATIONS OF THE SEMESTER

PERSONS WITH NO SCARS

| Failing Virus | Revaccination Virus | Vaccinia | Vaccinoid | Failure |
|---|---|---|---|---|
| N | C. S. | .. | 2 | .. |

PERSONS WITH SCARS

| Failing Virus | Revaccination Virus | Vaccinia | Vaccinoid | Failure |
|---|---|---|---|---|
| C | C | .. | .. | 2 |
| | C. S. | .. | .. | 1 |
| N | N | .. | .. | 11 |
| | N. Y. | .. | .. | 1 |
| N | C. S. | .. | 1 | 3 |

The small-pox epidemic in Berkeley at the opening of the second term of the academic year 1912-1913, gave opportunity of observing the course of revaccination in persons with scars of various kinds who reported for vaccination "to be on the safe side."

The experience gained in over one thousand revaccinations observed at that time confirmed the observations of Jenner,[3] Pirquet and others regarding the difference between a true primary vaccinia, and the condition produced by revaccination, which the French authors call "vaccinoid."

In general a vaccinia observed five days after vaccination is characterized by a yellowish vesicle surrounded by a narrow red areola, while the vaccinoid of the same age has a comparatively smaller vesicle surrounded by a wider areola. When no vesicle develops and the areola appears and subsides early we have the immediate reaction of Pirquet, which was first described by Jenner as "sudden efflorescence."

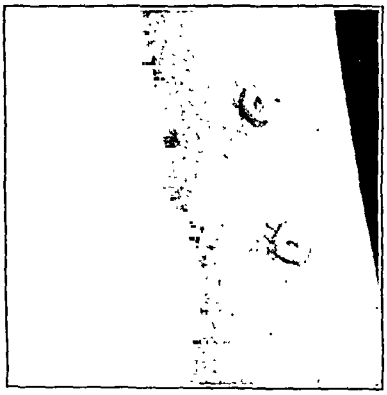
Fig. 5.—Vaccinia; sixth day; no previous take. Typical large vesicles with small areolae.

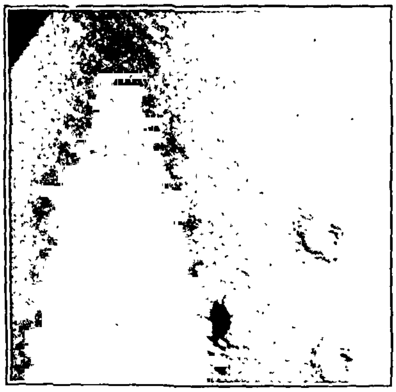
Fig. 6.—Vaccinia; eleventh day; no previous take.

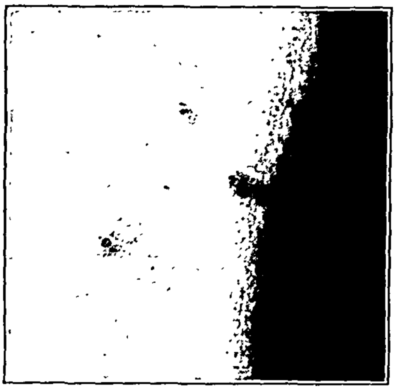
Fig. 7.—Vaccinoid; twenty-four hours. The upper point is a control and contains no virus. Note areolae around lower points which contain virus.

### THE TEST OF IMMUNITY

During the course of some observations and measurements of these areolae of immediate reactions, it occurred to me that this reaction might be used as a test of those failures which persisted each year in spite of our best efforts with uniform technic and cold virus. In a previous paper[4] some of the characteristic cases were described, but a general application of the test was not made until the opening of the academic year 1913-1914.

Previous to January, 1913, only the unscarred intrants had been vaccinated. Certain changes in the state vaccination law caused the regents of the university to issue an order that, in addition to unscarred intrants, all other intrants showing a scar over seven years old must be vaccinated. This order gave an excellent opportunity for the following application of the test of immunity:

If a student had an old, or otherwise unsatisfactory scar, he was vaccinated in two spots on the arm, a control spot being scarified and rubbed with the glycerin diluent used in the preparation of vaccine. Observations were made at twenty-four-, forty-eight- and seventy-two-hour periods after vaccination. If either of the vaccinated spots showed an areola of 5 mm. or over (with or without papule) at the end of twenty-four hours, which areola (or papule) had decreased at the time of the seventy-two-hour observation, it was considered a *reaction of immunity* due to the presence in the blood of the individual of antibodies against vaccine virus. The student was excused from further vaccination. If either of the vaccinated spots showed an areola at the end of twenty-four hours which developed into a small vesicle, maturing on the fifth or sixth day and then

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[3] Jenner: An Inquiry into the Causes and Effects of Variolae Vacciniae, 1798.

[4] Force, J. N.: The Skin Reaction after Cow-Pox Vaccination, California State Jour. Med., 1913, xi, 290.

TABLE 6.—COW-POX VACCINATIONS, AUGUST-DECEMBER, 1913; REACTIONS GROUPED ACCORDING TO CHARACTERISTICS OF SCAR

| | Vaccinia | | | | | | Vaccinoid | | | | | | Reaction of Immunity | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Intrants | | Old Students | | Out | % | Intrants | | Old Students | | Out | % | Intrants | | Old Students | | Out | |
| | M | W | M | W | | | M | W | M | W | | | M | W | M | W | | |
| No scar: | | | | | | | | | | | | | | | | | | |
| Never vaccinated | 157 | 116 | .. | .. | .. | 93 | 10 | 7 | .. | .. | .. | 6 | 3† | .. | .. | .. | .. | 1 |
| Vaccinated. No scar | 27 | 20 | .. | .. | .. | 54 | 6 | 5 | 3 | .. | .. | 16 | 4 | 6 | 10 | 6 | .. | 30 |
| Age of scar: | | | | | | | | | | | | | | | | | | |
| Under 10 years | 5 | 17 | .. | .. | .. | 27 | 22 | 18 | .. | .. | .. | 50 | 13 | 6 | .. | .. | .. | 23 |
| 10 to 20 years | 4 | 8 | .. | .. | .. | 12 | 27 | 26 | .. | .. | .. | 52 | 10 | 26 | .. | .. | 1 | 36 |
| Over 20 years | .. | 1 | .. | .. | .. | 5 | 4 | 5 | .. | .. | 2 | 52 | 4 | 4 | .. | .. | 1 | 43 |
| Size of scar: | | | | | | | | | | | | | | | | | | |
| Under 15 mm | 4 | 14 | .. | .. | .. | 26 | 18 | 15 | .. | .. | .. | 49 | 6 | 11 | .. | .. | .. | 25 |
| 15 to 20 mm | 2 | 3 | .. | .. | .. | 8 | 13 | 20 | .. | .. | .. | 50 | 14 | 13 | .. | .. | .. | 42 |
| Over 20 mm | .. | 1 | .. | .. | .. | 2 | 11 | 9 | .. | .. | 2 | 51 | 7 | 11 | .. | .. | 2 | 47 |
| Character of scar: | | | | | | | | | | | | | | | | | | |
| Pitted | .. | 1 | .. | .. | .. | 5 | 6 | 4 | .. | .. | .. | 45 | 3 | 7 | .. | .. | 1 | 50 |
| Keloidal | 1 | .. | .. | .. | .. | 3 | 10 | 7 | .. | .. | 2 | 53 | 8 | 7 | .. | .. | 1 | 44 |
| Smooth | 8 | 23 | .. | .. | .. | 22 | 36 | 37 | .. | .. | .. | 51 | 17 | 22 | .. | .. | .. | 27 |

| | |
|---|---|
| Total observations completed | 587 |
| Left university | 2 |
| Total vaccinations | 589 |

† One of these three had small-pox one year ago; one had chicken-pox three years ago.

* In this table, M means men, and W women.

rapidly subsiding, the reaction was considered a *vaccinoid.*

If there was no change until the third day, and then a small areola began to form, the case would be *vaccinia.* If there was no change by the fifth day, the failure was charged to technic and the experiment was repeated. If a case was not seen until the fifth day, and there were no signs of a recent local reaction, the vaccination was repeated, and daily observations were made, for all signs of the reaction of immunity may be gone by the fifth day.

### *Results of the Application of the Immunity Test.*

Out of 589 persons vaccinated during the semester August-December, 1913, complete records have been obtained from all but two. In all doubtful cases a revaccination has produced one of the characteristic reactions.

Table 6 classifies the results of this series of vaccinations in terms of the attributes of the scars, as well as under the three reactions to vaccine virus: vaccinia, vaccinoid and the reaction of immunity.

A few points in this table are worthy of notice.

1. Of the three previously unvaccinated intrants giving the reaction of immunity, one had a definite history of small-pox, one had a history of recent chicken-pox (which might have been small-pox) and the third denied having had either small-pox or chicken-pox.

2. Sixteen unscarred old students and ten unscarred intrants gave the reaction of immunity. This would imply the presence of antibodies against vaccine virus, due to repeated doses of a virus in each instance incapable of *growth,* but capable of producing immunity; that is, analogous to a bacterial vaccine made from a killed culture.

3. The highest percentage of reactions of immunity occurred in persons having well-pitted scars.

4. No natural immunity against vaccine virus was discovered. Such a person would have no history of vaccinations nor would he give a *specific* reaction of immunity to vaccine virus.

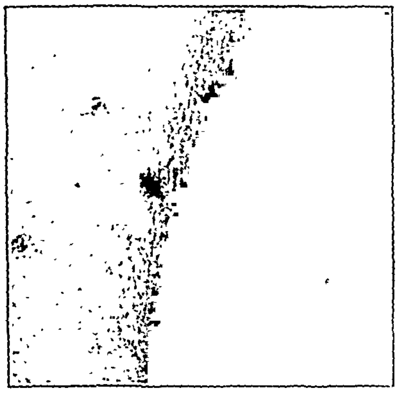

Fig. 8.—Vaccinoid; forty-eight hours. Note beginning papules on two lower points.

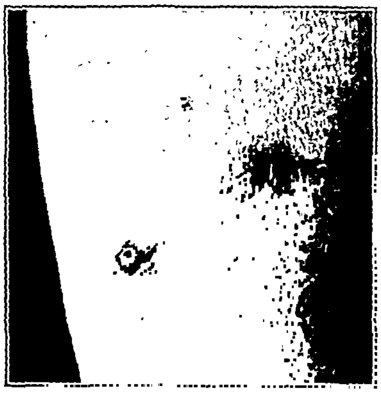

Fig. 9.—Vaccinoid; fourth day. Typical small vesicle on large areola. The area formation occurred on the fifth day, and the scab was removed on the seventh day. Subject had large keloidal scar from vaccinia twenty-six years before.

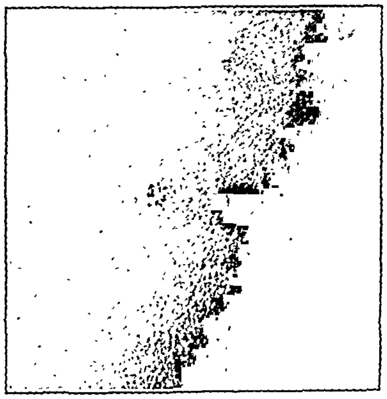

Fig. 10.—Reaction of immunity twenty-four hours after vaccination. The upper spot is the control. There are 5 mm. areolae around both vaccinated spots.

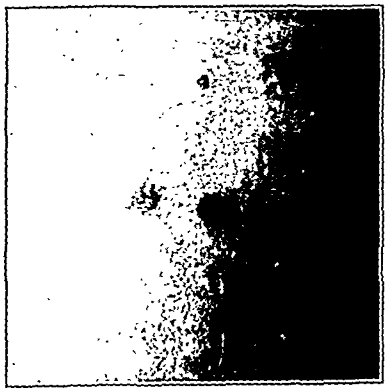

Fig. 11.—Reaction of immunity forty-eight hours after vaccination. The areolae have increased slightly and there is papule formation.

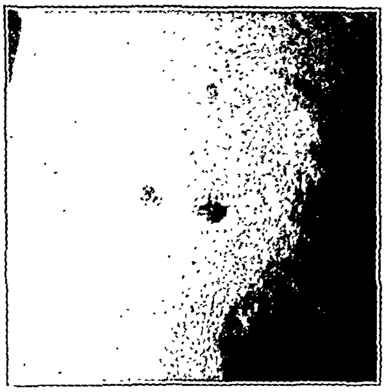

Fig. 12.—Reaction of immunity seventy-two hours after vaccination. The areolae are growing smaller and the papule is disappearing. By the fifth day there were only signs of trauma, and the vaccination would have been classed as a failure if the first observation had been made at that time.

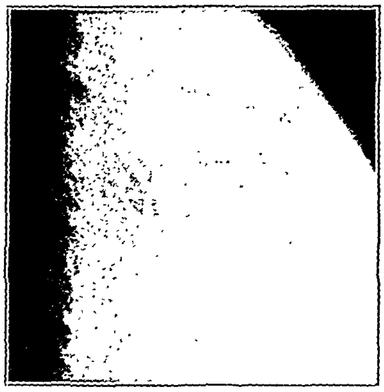

Fig. 13.—Vaccinia; completed scar; modified von Pirquet method.

The following cases serve to illustrate certain points which must be considered in the application of the test:

Case 1.—G. R., intrant, vaccinated just before entrance with no result, was vaccinated Sept. 22, 1913.

September 26: No reaction.

September 29: Revaccinated with same virus, in two spots with a control scarification.

September 30: No reaction in vaccinated spot.

October 1: No reaction.

Jan. 5, 1914: Revaccinated with fresh virus in two spots with a control scarification.

January 6: No reaction in vaccinated spots.

January 7: Seven mm. areolae around vaccinated spots.

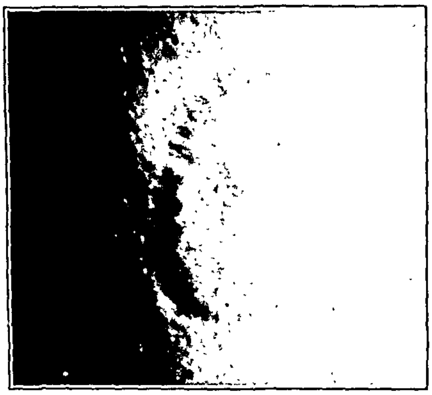

Fig. 14.—The ordinary type of vaccination scar.

January 10: Vesicle in vaccinated spots, but 20 mm. areolae in place of the ordinary small areola hardly larger than the vesicle.

Case 2.—P. A., intrant, never vaccinated, was vaccinated Oct. 1, 1913.

October 6: No reaction.

October 13: Revaccinated with same virus in two spots with a control scarification.

October 14, 15, 16 and 20: No reaction in vaccinated spots.

October 27: Revaccinated with a fresh virus, two spots, and a control sarification.

October 21: No reaction.

November 3: Vesicles on both vaccinated spots, but areolae larger than normal for primary vaccinia.

These two cases were stragglers vaccinated during the month following the general vaccination of intrants. The repeated vaccinations with an inert virus probably served to sensitize them. This accounts for the large areolae occurring in conjunction with the formation of vaccinia vesicles.

Case 3.—L. S. H., old student, vaccinated between ten and twenty years ago. Had scar 15 mm. in diameter very well pitted, the type of scar from which we obtain the highest percentage of immunity reactions. Vaccinated Nov. 19, 1913, in two spots with a control scarification, *the same virus being used which had failed twice with Cases 1 and 2.*

November 20: Areolae 10 mm. in diameter with slight papule around both vaccinated spots.

November 21: Same condition.

November 25: Areolae almost faded.

This case shows that virus incapable of growth may produce the reaction of immunity in a person well supplied with antibodies. It is suggested that repeated inoculation with a virus inactivated by heating, or sensitized by serum from an animal immune to vaccinia, might stimulate antibody formation without the necessity of first growing the colony of vaccine organism on the skin as a culture-medium.

If by the fifth day no reaction whatever occurs in a previously unvaccinated person, the virus is probably inert. Signs of activity produced by vaccinating a previously vaccinated person with the same virus should not be considered proof to the contrary. In the absence of natural immunity, one of the three reactions must occur.

## CONCLUSIONS

1. Any one of the typical reactions against vaccine virus must be regarded as an evidence of immunity.
2. If antibodies against virus are present in the blood of the individual the immediate reaction occurs, characterized by the formation of an areola around the vaccinated spot usually within the twenty-four hours succeeding the vaccination.
3. If antibodies are not present but the power of forming them exists through previous vaccinations, the growing vesicle is aborted sooner than in a previously unvaccinated person, which accounts for the small size of the vesicle and the early appearance of an areola larger than in the case of a vesicle of the same age.
4. The technic described is an aid to exact observation subsequent to revaccination.
5. Physicians' certificates of immunity should be based on an observed reaction and not on the failure of two or three vaccinations, unobserved until the fifth day after the insertion. These "failures" may not have been due to immunity but to inert virus.

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# A NEW AID FOR THE DIAGNOSIS OF STRICTURE OF THE ESOPHAGUS

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NEW YORK

Having had negative Roentgen findings in several patients in my clinic with evident stricture of the esophagus, as demonstrated by sounding, and knowing the importance of an early diagnosis in such con-

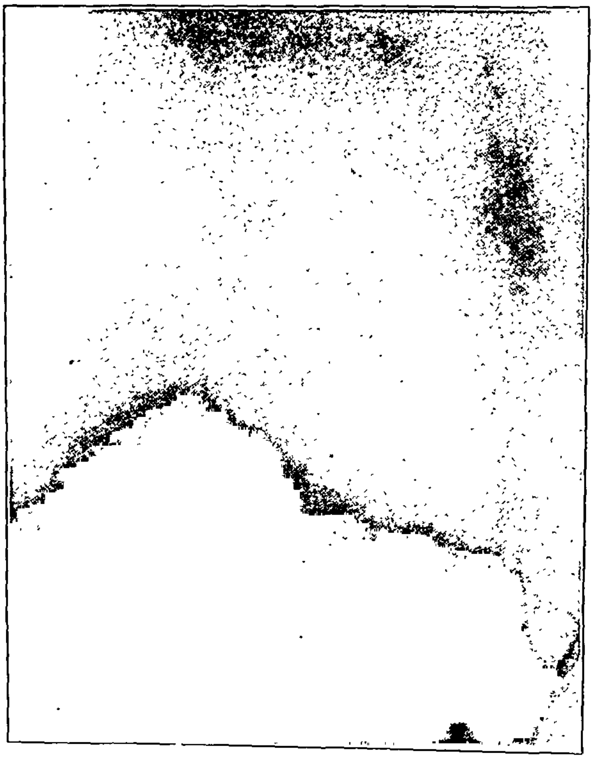

Fig. 1.—Epithelioma of esophagus; roentgenogram after wheat breakfast-food-bismuth subcarbonate mixture.

ditions, I shall report a method that will not only give a clear outline of the encroachment in malignant strictures, but also be a readily applied aid in the treatment of benign strictures. In the cases which I here report, the method as outlined by Bassler of blocking the cardia with a rubber bag was impossible because the rubber necessary for proper inflation was too thick to be passed through the strictures in spite of repeated attempts. The wheat breakfast-food-bismuth subcarbonate mixture also gave negative results (Fig. 1). The rubber-bag method is a good one, but causes pain. The bismuth mixture as suggested by Steward will outline the proximal part of the esophagus, but give little idea of the distal.

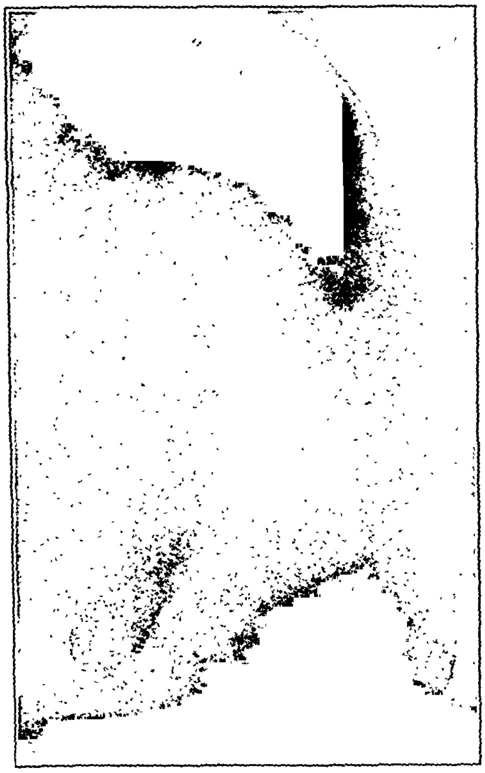

Fig. 2.—Same case as Figure 1 after skin method; smallness of caliber above stricture due to infiltration and contraction of esophageal wall.

The method which I wish to report consists in the use of sausage-skin or gold-beaters' skin. Gold-beaters' skin is preferable, as it is tougher, but it cannot at present be obtained in satisfactory lengths. (I am having these made for treatment of benign strictures to be used as a guide instead of silk thread. Report of this technic will be given in a later paper.)

Sausage-skin is the fibrous coat of the intestine of the hog and is obtained from the slaughter-house in the cleaned and prepared state as used for packing sausage. It is cut in lengths of about 50 mm., thoroughly washed inside and out and placed in jars of a solution of 1 per cent. liquor formaldehydi and 10 per cent. glycerin. One end, the distal, of a piece of skin is tied with silk floss so as to make a bag. The proximal or mouth end is slipped over a rubber ferrule large enough for the skin to fit snugly and tied.

The bag as it is now is only a string. Before giving this to the patient it is best to cocainize the pharynx and esophagus to prevent retching and coughing. This, however, is not always necessary. The patient then swallows the skin with the aid of a little water. When the stricture admits a No. 15 French olive it is best to keep the skin straight by running it over a capillary rubber tube. This is easily done by first tying the upper end on the ferrule, holding the ferrule under a water-tap and allowing the water to carry the tube through. There should be a small metal tip on the end of the tube so that the skin can be tied without collapsing the rubber. The stomach contents can then be aspirated to show if the tube has passed into the stomach. It is surprising how easily a patient with the smallest stricture can swallow one of these skins and how readily it untwists itself on being filled.

After the skin is down, a thick bismuth mixture is allowed to flow in from an irrigator holding a couple of hundred cubic centimeters, 20 c.c. at a time. After the operator is sure that the bismuth is down, the skin is pulled up a little and allowed to drop back in order that any kinks that might possibly form may be untwisted. This method of filling and pulling until the bag is full to the pharynx is continued, a stopper is put into the ferrule and the patient given a couple of tablespoonfuls of bismuth mixture to swallow outside the tube, a teaspoonful at a time, to fill any irregularities or pockets not outlined by the bag.

There may be some difficulty in removing the bag in the smaller strictures, but this need not occasion alarm. The patient is placed face downward over the edge of the table and gentle but firm traction given the skin, the ferrule being held over some small vessel. The main thing is not to be in a hurry. Naturally, with a small stricture it will take a few minutes for the thick bismuth to pass the opening. The patient should be cautioned beforehand, so that it will not cause unnecessary alarm.

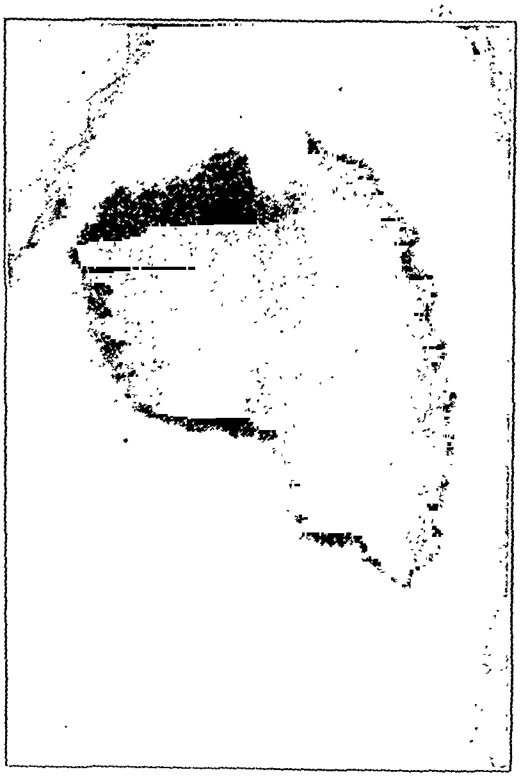

Fig. 3.—Annular stricture of the esophagus

The advantages of this method are that the skins are easily obtained; the extent of involvement below as well as above is ascertained, and there is assurance of a good outline in an early as well as a late stage of the process.

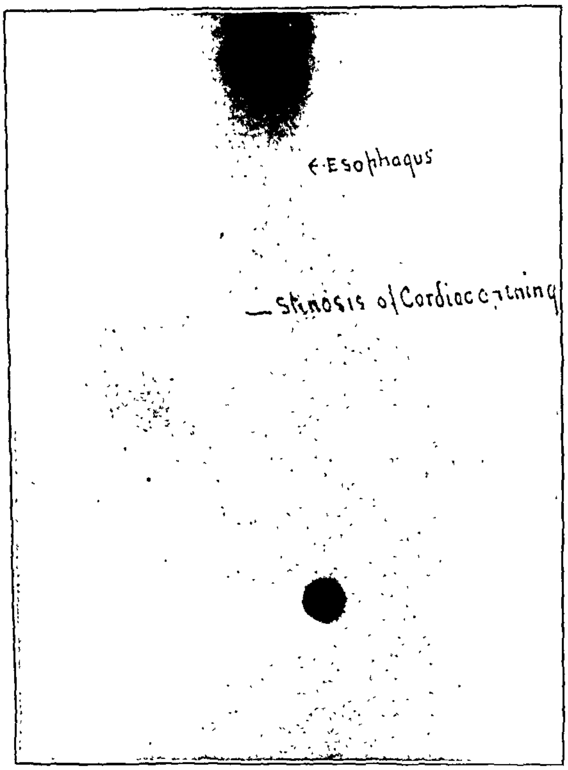

Fig. 4.—Carcinoma of the stomach. Entire stomach contracted. Skin in duodenum (proved at operation by Dr. Ellsworth Eliot).

My thanks are due Dr. Henry C. Thacher for suggestions in this work and also to Mr. I. L. Simms, roentgenographer of the Presbyterian Hospital, for his excellent pictures and his patience in helping me during the experimental stage.

20 West Fiftieth Street.

**Acute Lymphatic Leukemia After Tetanus Serum Anaphylaxis.**—Boy, aged 14, seen in consultation with Dr. W. P. Davidson of Sullivan, Ill., of previous good health, four weeks before had been given a prophylactic dose of antitetanic serum for a slightly infected nail puncture of foot; over two years ago he had taken a similar dose of antitetanic serum for a similar nail puncture of the foot. Within thirty-six hours after the second dose, he developed a violent urticaria with large wheals and erythema, with vomiting and fever; after a few days with decline of anaphylaxis a general adenitis of the cervical, axillary and inguinal glands was noticed, and the spleen and liver enlarged rapidly, the spleen, after two weeks, reaching the umbilicus; anemia became profound, fever of moderate grade ensued with great prostration, and death from hemiplegia occurred at the end of four weeks. The blood examination, one week before death, showed hemoglobin 35 per cent. and white cells 420,000, consisting of large lymphocytes 77 per cent., small lymphocytes 18 per cent., polynuclears 3 per cent., and eosinophilic polynuclears 2 per cent. Among the red cells there were numerous megaloblasts and poikilocytosis. A necropsy was not obtained. I record this case only with the idea that it might help to solve some of the problems of the relation of anaphylaxis to other diseases, and I do not pretend to assert that because the acute leukemia followed the anaphylaxis in a possibly sensitized subject, it was produced by the second dose of tetanus serum.—Everett J. Brown, M.D., Decatur, Ill.

## A METHOD OF STAINING AND MOUNTING SMEARS

Hugh S. Willson, M.D., Minneapolis

Time, expense and simplicity are large factors in laboratory work, especially when the practitioner does the work himself.

In the preparation of smears of gastric extract and feces I have been using, for some months, a method which not only fulfils the foregoing requirements, but also can be adapted to the staining and mounting of smears from many other sources.

The idea was suggested to me by Smithies' agar preparation, the disadvantages of which are that agar is very slow to put into solution and must be kept in a refrigerator to preserve for any length of time.

I have substituted ordinary powdered gelatin, which goes into immediate solution in boiling water.

A few pinches of gelatin powder are added to a small quantity of boiling water in a test-tube. For immediate use 2 or 3 c.c. are poured into a smaller tube and about one-third the volume of stain is added, or a sufficient amount to give the density of stain desired.

After smears have been fixed on a cover-slip, 2 or 3 drops of the gelatin stain are placed on the smear surface and the cover-slip inverted on a glass slide.

The gelatin stain hardens sufficiently to work with an oil-immersion lens and does the staining at the same time, making a neat stained mounting of sufficient permanency for ordinary work.

The expense element is modified by the fact that the used slides can be easily washed in hot water.

900 Nicollet Avenue.

## *Special Article*

## TYPHOID IN THE LARGE CITIES OF THE UNITED STATES

About a year ago[1] The Journal published statistics showing the prevalence of typhoid fever since 1906 in those cities of the United States having over 100,000 population. The cities so considered number fifty-one and include nearly one-fourth of the population of the country. The fact that sanitary improvements have been inaugurated in some localities as the result of the interest which has been aroused by the facts published in The Journal is sufficient justification for summarizing the typhoid conditions for 1913 in the same cities:[2]

TABLE 1.—DEATH-RATES FROM TYPHOID IN CITIES OF GROUP 1 (OVER 500,000 POPULATION)

| | *Deaths from Typhoid per 100,000 Population* 1913 | 1912 | Average 1911-1913 | Average 1906-1910 |
|---|---|---|---|---|
| New York | 7.0 | 9.8 | 9.3 | 13.8 |
| Boston | 8.4 | 8.1 | 8.6 | 16.0 |
| Chicago | 10.5 | 7.5 | 9.6 | 15.5 |
| Cleveland | 13.5 | 5.9 | 11.4 | 16.5 |
| Philadelphia | 15.7 | 12.5 | 14.1 | 42.1 |
| St. Louis | 16.9 | 10.4 | 14.2 | 16.1 |
| Pittsburgh, Pa. | 18.1 | 12.7 | 18.5 | 74.3 |
| Baltimore | 23.6 | 23.9 | 24.9 | 34.6 |

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[1] Typhoid in the Large Cities of the United States, special article, The Journal A. M. A., May 31, 1913, p. 1702.

[2] The number of typhoid deaths has been sent to us by the local officer of health and the rates have been calculated on the basis of population estimates made according to the method of the U. S. Census Bureau. It may perhaps be noted that the figures kindly furnished us by the municipal officials include the deaths of non-residents as well as residents occurring in the city limits. In some instances this undoubtedly gives an exaggerated impression of the amount of typhoid fever in a community, but at present statisticians are agreed that "the attempt to eliminate the deaths of non-residents would often result *in an under-statement* of the true mortality" (Bureau of the Census, Mortality Statistics, 1912, p. 13).

### OUTBREAKS IN NEW YORK AND PHILADELPHIA

It is a matter for national congratulation that the largest city in the country has reached so satisfactory a condition in its typhoid death-rate (New York, Table 1), recording as it does in 1913 not only the lowest typhoid rate in its history (7 per one hundred thousand population), but also a rate that compares creditably with the typhoid rate in European capitals. It should be remarked also that this low rate in Greater New York was reached in spite of a milk-borne typhoid epidemic which involved several hundred cases in Manhattan during September and October. Even including this outbreak, the total number of cases between July 1 and November 1 was less in 1913 than in 1912.[3] Philadelphia, like New York, suffered in 1913 from an unusual and highly instructive outbreak. Beginning about the end of April and continuing for several months, there was, in Philadelphia, an excessive amount of typhoid in the district served by the Torresdale filters. From 70 to 75 per cent. of all the cases in the city originated in the infected district. This localization of the typhoid excess in the region supplied by a particular source fixed responsibility very clearly on the water-supply, and the epidemiologic conclusions were confirmed by bacterial examination. Since the water on leaving the filter-plant was pure, the conclusion was drawn that infection occurred through leakage into the pure-water mains. It was then learned that a large number of manufacturing plants in the affected district maintained a dual piping system for fire protection or some other purpose — one set of pipes carrying the filtered city-water, the other connected with the first and containing the raw and highly polluted water of the Delaware River. It is clear that in such a system any defect of the valves or any accident to the separating devices might result in a calamitous mixing. Over 140 of these dual connections were severed by order of the Board of Health and the number of typhoid cases in the affected district has since greatly decreased. In spite of this rather serious epidemic the typhoid death-rate increase was slight compared with the former alarming prevalence of typhoid in Philadelphia.

The case of Cleveland seems to call for special comment in view of the fact that this city exhibits the greatest change in its typhoid rate of any city in the group, the 1912 rate being more than doubled in 1913. The increase is so great that there is reasonable ground for the concern felt in that city over the situation. As is well known, the Cleveland water-supply, which is at present derived from Lake Erie without filtration, is, in its raw state, more or less contaminated, and although the water is treated with calcium hypochlorite, there seems some question whether the amount of disinfectant used during part of 1913 was adequate for the destruction of all pathogenic organisms. It is not surprising that plans are on foot for a filtration plant.

### AN INCREASE IN CHICAGO

A somewhat disquieting typhoid increase occurred in the fall of 1913 in Chicago. The lake water was held responsible by some writers, and facts recently brought to light seem to support the view that the public water-supply is still a factor in the typhoid fever situation in Chicago.[4] Baltimore still leads this group of cities in excessive typhoid fever, but maintained substantially the same rate in 1913 as in 1912, in the face of a typhoid increase in all the other cities of the group, excepting New York.

TABLE 2.—DEATH-RATES FROM TYPHOID IN CITIES OF GROUP 2 (300,000 TO 500,000 POPULATION)

| | Death from Typhoid per 100,000 Population | | Average | Average |
|---|---|---|---|---|
| | 1913 | 1912 | 1911-1913 | 1906-1910 |
| Cincinnati ........... | 6.4 | 7.5 | 8.5 | 30.0 |
| Newark, N. J. ....... | 7.9 | 7.1 | 8.4 | 14.6 |
| Milwaukee, Wis. ..... | 11.2 | 25.3 | 18.6 | 27.0 |
| Minneapolis ......... | 12.4 | 11.5 | 11.8 | 32.2 |
| Los Angeles, Cal. .... | 13.5 | 14.6 | 13.6 | 19.0 |
| Buffalo, N. Y. ....... | 15.3 | 11.4 | 17.3 | 22.8 |
| Washington, D. C. ... | 16.4 | 21.2 | 19.5 | 36.9 |
| San Francisco ....... | 16.7 | 14.1 | 15.5 | 27.3 |
| New Orleans ........ | 16.9 | 14.0 | 20.5 | 35.6 |
| Detroit ............. | 27.5 | 17.1 | 20.1 | 23.4 |

Cincinnati has succeeded in bettering a little its excellent record for 1912. Washington recorded the lowest typhoid-rate in its history, less than half its average for the years from 1906 to 1910 (Table 2). Remarkable improvement in 1913 is exhibited by Milwaukee. There can be little doubt that the Milwaukee reduction is due primarily to the persistent use of hypochlorite in the water-supply. It shows what may reasonably be expected in this typhoid-ridden city when the water-supply is permanently and thoroughly protected from sewage contamination. The water-supply conditions in Milwaukee have already been fully described in The Journal.[5]

The great improvement in recent years in New Orleans is worthy of remark and is perhaps due to the extension of a modern sewerage system in that city. Is there a lesson here for other Southern cities?

Minneapolis, which ranked eighth in the list in the period from 1906 to 1910, ranked third in the period from 1911 to 1913. It is instructive to note that the rate for 1913 (new filtration plant in operation since January) differs little from that for 1911 and 1912, when the unfiltered water was treated with hypochlorite.

### THE HIGH RATE IN DETROIT

Detroit stands out in Table 2 with a conspicuousness that can hardly be pleasing to its citizens. The Detroit typhoid-rate for 1913 was the highest in the group and nearly double that of the next highest on the list. Only four other cities in the whole fifty-one had a higher rate than Detroit, and three of these are in the Southern states. There has been little disposition in Detroit to admit that the drinking-water might be responsible for the relatively high typhoid prevalence, and we note still a tendency on the part of some of the Detroit newspapers "to rebuke and refute the alarmists." Even within a few months one paper warns its readers editorially not to "take the international report on the water-supply of the Great Lakes too seriously," and follows its reassurance with the jaunty remark: "From what the scientists say we folks here must have all died from typhoid fever long ago." We do not believe that the citizens of Detroit will relish having the highest typhoid-rate, barring one, of any Northern city, or that they will subscribe without further question to the declaration that "as a matter of fact, typhoid fever is not even one of our grave menaces in this city." Why should Detroit shut its eyes to the facts?

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[3] Report on the Typhoid-Fever Epidemic in Manhattan, 1913, by the Central Council of Public Health of the City of New York, New York Med. Jour., Jan. 10, 1914.

[4] Young, G. B.: Am. Jour. Pub. Health, April, 1914.

[5] Typhoid Fever in Milwaukee and the Water-Supply, special article, The Journal A. M. A., July 16, 1910, p. 211.

TABLE 3.—DEATH-RATES FROM TYPHOID IN CITIES OF GROUP 3 (200,000 TO 300,000 POPULATION)

| | Death from Typhoid per 100,000 Population | | Average | Average |
|---|---|---|---|---|
| | 1913 | 1912 | 1911-1913 | 1906-1910 |
| Seattle, Wash ....... | 4.9 | 7.4 | 7.3 | 25.2 |
| Portland, Ore. ...... | 7.8 | 16.9 | 14.2 | 23.3 |
| St. Paul, Minn. ..... | 8.3 | 10.2 | 9.5 | 18.0 |
| Providence, R. I. .... | 10.0 | 10.3 | 10.8 | 14.3 |
| Rochester, N. Y. .... | 10.2 | 11.8 | 10.8 | 12.4 |
| Jersey City, N. J. .. | 10.5 | 7.5 | 8.1 | 12.6 |
| Denver ....... ..... | 12.7 | 13.0 | 14.4 | 35.5 |
| Kansas City, Mo. .... | 21.6 | 12.8 | 19.4 | 35.6 |
| Louisville, Ky. ...... | 21.7 | 18.9 | 21.6 | 52.6 |
| Indianapolis ......... | 24.5 | 18.3 | 23.0 | 30.4 |

The figures for this group are certainly encouraging reading. Six out of the ten cities report a lower typhoid-rate in 1913 than in 1912, and all ten had a lower average for the three years, from 1911 to 1913, than for the years from 1906 to 1910, the reduction amounting in three cases (Seattle, Denver and Louisville) to more than one-half (Table 3). Seattle reported for 1913 the lowest typhoid death-rate of any of the fifty-one cities. The Kansas City rate for 1913, on the other hand, is so much higher than that for 1912 as to suggest inquiry.

TABLE 4.—DEATH-RATES FROM TYPHOID IN CITIES OF GROUP 4 (125,000 TO 200,000 POPULATION)

| | Death from Typhoid per 100,000 Population | | Average | Average |
|---|---|---|---|---|
| | 1913 | 1912 | 1911-1913 | 1906-1910 |
| Scranton, Pa. ......... | 6.4 | 8.7 | 9.0 | 31.4 |
| Paterson, N. J. ........ | 6.8 | 4.6 | 10.9 | 19.3 |
| Oakland, Cal. ......... | 9.1 | 9.0 | 10.2 | 21.5 |
| New Haven Conn. .... | 11.3 | 24.5 | 19.4 | 30.8 |
| Worcester, Mass. ...... | 12.3 | 6.6 | 8.5 | 11.8 |
| Syracuse, N. Y. ....... | 13.0 | 16.8 | 15.2 | 15.7 |
| Atlanta, Ga. .......... | 16.6 | 35.2 | 35.9 | 58.5 |
| Richmond, Va. ........ | 19.2 | 16.2 | 17.6 | 34.0 |
| Columbus, Ohio ....... | 19.2 | 20.2 | 17.7 | 40.0 |
| Memphis, Tenn. ....... | 30.1 | 56.2 | 49.2 | 35.3 |
| Birmingham, Ala. ..... | 36.0 | 38.0 | .... | .... |
| Toledo, Ohio ......... | 41.8 | 33.0 | 32.5 | 37.4 |

Group 4 (Table 4), like Group 3, shows a lower death-rate in most cases for 1913 than for 1912. New Haven, in contrast to its previous bad record, reports the lowest death-rate in its history, less than half that of the preceding year. Its rate is still, however, twice that of the neighboring city of Bridgeport. Worcester, after maintaining a reasonably low record for a series of years, fell from grace in 1913 and recorded a higher typhoid-rate than the average for the preceding seven years. Atlanta and Memphis report a noteworthy decrease, Toledo an increase. Only one city (Memphis) has a higher average for the period from 1911 to 1913 than for 1906-1910. Two cities maintain about the same level (Syracuse and Toledo); all the others show a substantial reduction, especially marked in the cases of Scranton, Richmond and Columbus. Toledo continues to have a high rate for a Northern city.

TABLE 5.—DEATH-RATES FROM TYPHOID IN CITIES OF GROUP 5 (100,000 TO 125,000 POPULATION)

| | Death from Typhoid per 100,000 Population | | Average | Average |
|---|---|---|---|---|
| | 1913 | 1912 | 1911-1913 | 1906-1910 |
| Bridgeport, Conn. ..... | 5.4 | 7.4 | 5.5 | 10.2 |
| Omaha ............... | 6.9 | 13.2 | 21.7 | 40.8 |
| Spokane, Wash. ....... | 7.2 | 16.9 | 20.9 | 50.4 |
| Cambridge, Mass. ..... | 9.2 | 2.8 | 5.6 | 9.8 |
| Lowell, Mass. ........ | 10.0 | 9.2 | 8.6 | 13.9 |
| Fall River, Mass. ...... | 10.5 | 18.8 | 15.0 | 12.5 |
| Hartford, Conn. ...... | 11.5 | 12.7 | 14.7 | 18.9 |
| Dayton, Ohio ......... | 15.1 | 17.9 | 17.1 | 22.4 |
| Grand Rapids, Mich. .. | 16.7 | 34.0 | 25.6 | 29.7 |
| Albany, N. Y. ........ | 27.4 | 17.7 | 21.0 | 17.5 |
| Nashville, Tenn. ...... | 36.1 | 30.1 | 39.4 | 61.2 |

Grand Rapids shows the greatest change in any city in Group 5 (Table 5), the typhoid rate being cut in two in this the first year of operation of the new water filter. Fall River also shows marked improvement. Albany suffered in April, 1913, from the flooding of the slow sand-filtration plant with the polluted Hudson River water. From April 1 to May 1, 180 cases of typhoid were reported. Five deaths from typhoid were reported in April and seven in May or nearly one-half the year's record (28). But for this outbreak the Albany death-rate would have been apparently very close to that of 1912.

Nashville, Tenn., had a somewhat higher rate in 1913 than in 1912. Is there any real reason why Nashville should have a typhoid rate more than twice as high as New Orleans?

Only three cities had a higher average typhoid rate from 1911 to 1913 than from 1906 to 1910 (Memphis, Tenn., Fall River, Mass., and Albany, N. Y.).

Cities with an average typhoid death-rate in the years from 1911 to 1913 below 10 are New York, Boston, Chicago, Cincinnati, Newark, Seattle, St. Paul, Jersey City, Scranton, Worcester, Bridgeport, Cambridge and Lowell — thirteen cities as contrasted with one (Cambridge) having an average below 10 from 1906 to 1910.

### NINETEEN THIRTEEN NOT A TYPHOID YEAR

The year 1913 has been widely spoken of as a "typhoid year," and it is known that several cities suffered more severely from typhoid in 1913 than for the two or three years preceding. But in the whole population group involved there does not appear to have been an increased typhoid prevalence.

TABLE 6.—TOTAL AVERAGE TYPHOID DEATH-RATE FOR 1912 AND 1913

| | Total Population (51 Cities) (Estimated by U. S. Census-Bureau Methods) | Typhoid Deaths | Typhoid Death-Rate per 100,000 |
|---|---|---|---|
| 1912 ............ | 21,472,847 | 2,731 | 12.72 |
| 1913 ............ | 21,844,002 | 2,775 | 12.70 |

In 1913, 26 cities had a lower typhoid death-rate than in 1912, and 25 a higher; 14 had a death-rate under 10 in 1913 and 15 in 1912. While not a "typhoid year" in the sense of an actually increased typhoid rate, it is evident that 1913 was not marked by any considerable typhoid reduction.

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**Comfort Stations.**—Most American cities are insufficiently, or not at all, provided with public comfort stations, a shortcoming in striking contrast with towns and cities abroad. The New York Association for Improving the Condition of the Poor has made a survey of the public and semipublic comfort stations in New York City, with a view of obtaining an idea of the extent of their use, their character, accessibility, equipment, sanitary condition, etc. The results of this survey are published in a pamphlet of the Bureau of Public Health and Hygiene of that association. Room for greater improvement has been found. More stations, with better accommodations and equipments are needed, for which many recommendations and specifications have been suggested. One of the recommendations is that the present subway stations should be more generally utilized for this purpose, and that in the extensions of the subway, provisions should be made for these public comfort stations. An interesting feature of the survey was the bacteriologic study of contacts within the stations in which the possibility of the transmission of disease was shown to be present. Parasites are also acquired in this way. It is said that no devices, however, elaborate or sanitary, are likely to be a success in public institutions unless their installation is accompanied by an active and direct educational campaign.

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SATURDAY, MAY 9, 1914

## THE SENSATIONS OF THE SKIN

Aside from its purely scientific interest the study of the cutaneous sensations has a direct bearing on the every-day experiences of practical medicine. Not long ago the essential function of the sensory nerves of the skin was conceived of as relating almost solely to the sensation of touch. Little by little our knowledge has been extended and it has been shown that these nerves mediate a number of qualities of sensation, such as pressure, warmth, pain, heat and cold. It is established to-day that the cutaneous senses are not distributed uniformly over the whole skin, but are associated with discrete points or spots. The warm and cold spots, for example, have a distinctly punctiform distribution. Not a little effort has been expended by physiologists in mapping this out; in measuring the delicacy of some of these senses in various regions of the skin; in determining the threshold stimulus and the localizing power, as well as numerous other factors which lie on the border between physiology and psychology. Cutaneous pains are not always referred to the actual point of irritation by all persons. The inaccuracies here involved not infrequently bring confusion to the physician. Reflected pains misreferred to the surface of the body, when in reality they involve visceral organs, may become an occasional cause of diagnostic error.

To the great mass of positive contributions on the sensory capacity of the normal skin, gained from an enumeration and analytic measurement of the various sensations and showing that function therein is distributed in, and limited to, minute and sharply localized spots, a newer group of negative or pathologic data has been added. This has involved the attempt to ascertain accurately the various forms of sensory loss shown by skin deprived of its nerve-supply. Anomalous changes in the anatomic distribution of the nerves or the perversions brought about by disease or injury have been subjected to critical examination in a considerable number of persons. The latter method, while affording a most valuable sort of corroboratory evidence in connection with the careful observations of trained physiologists, suffers somewhat from the fact that the subjects of accidental division of or injury to the cutaneous or other nerves rarely possess the intelligence or training requisite for an advantageous and reliable interpretation of such subtle phenomena as sensations. It was, therefore, a great step in advance when Henry Head conceived the possibility of obtaining for investigation on the negative side a subject who could be selected for his known capacity as an observer rather than from the mere fact that he had experienced the loss of the function of a nerve.

The pioneer work of Head,[1] in which his own nerves were sectioned and he thus obviated the difficulty of obtaining from clinical subjects, untrained in introspection, reliable accounts of the changes in cutaneous sensibility occurring during the regeneration of a cutaneous nerve, speedily led to the discovery of a number of phenomena that had previously escaped observation. It has emphasized the necessity of differentiating deep sensibility from cutaneous sensibility proper. After desensitization of any given surface area of the skin it is still possible in this area to appreciate deep pressure and pain, and the localization of the situation of the pressure is fairly well carried out. On the other hand, the sensations of light touch, as well as of temperature and pain evoked by a light pinprick, are absent. The sensations of pressure, as well as of deep pain or pressure pain, are therefore carried by the nerves of deep sensibility. They are not the cutaneous nerves, but are derived from the sensory elements of the muscular nerves. To the fingers, for example, they run in the tendons of the muscle. Therefore simultaneous division, as by a circular-saw cut, of the cutaneous nerves and tendons to the fingers will abolish deep as well as superficial sensibility.

These interesting beginnings, the wider generalization of which cannot be rehearsed here, were followed by similar, more extensive divisions of seven of their own cutaneous nerves by Trotter and Davies.[2] In each case the area of skin supplied by the nerve showed in consequence of the operation defects in seven distinct functions: four sensory, namely, sensibility to touch, cold, heat, pain; and three motor, namely, vasomotor, pilomotor and sudomotor. Their observations also agree in establishing that sensibility to touch is subserved by a nervous mechanism distinct from that of pressure; the former occurs in the skin only, the latter chiefly in the deep structures. It is probable, however, that the skin possesses some sensibility to pressure. After section of a nerve, recovery of function occurs only as a result of regeneration. Recovery of all the functions which are dependent on regeneration begins about the same time.

With the increase in the number of reliable subjects comes a gradual elimination of the personal equation from observations in this field. This fact offers a justification for such experiments involving self-sacrifice, the latest of them being carried out by Dr. Boring[3] of the Physiological Laboratory at Cornell University, who sectioned the anterior branch of an internal cutaneous nerve. The novelty in his experiments consisted in the fact that a special attempt was made, during the year preceding the operation, to train the subject in the observation of cutaneous sensation and in the analysis of the sensational complexes mediated by the normal skin. Care was taken to distinguish between the qualities of cutaneous contact, cutaneous pressure and deep pressure, all of which can be distinguished by practice; between warmth, heat and burning heat (the last two are complex); and to some extent between the different modes of cutaneous pain. Besides this special training, the subject had the advantage of general introspective practice, obtained during several years of psychologic investigation. The selection of the nerve for section was such that the region affected was sufficiently small to permit of a more careful exploration than would have been possible if it had been necessary to cover a large area. As in the earlier investigations, the section of the cutaneous nerve did not destroy the sensibility of the subcutaneous tissue, which provided to a considerable extent the capacity for localization. With the exception of certain early general pains, that were probably, strictly speaking, not of cutaneous origin, it may be said that the return of the sensations of warmth, cold, pressure and pain began at approximately the same time. The regions insensitive to each of these four sensations, both immediately after the section of the nerve and during the period of returning sensibility, were approximately, but by no means exactly, the same. In general, sensitivity began to return at the outside of the affected area and progressed toward the center, although decided irregularities in this course appeared; hypesthesia preceded normal sensitivity, but periods of hyperesthesia to pain and cold were noted. The observations so far recorded indicate that the four sense qualities will not simultaneously return to normal and that temperature sensations return more rapidly.

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[1] Head, H.: Brain, 1905, xxviii, 99; 1908, xxxi, 323.

[2] Trotter, W., and Davies, H. M.: Experimental Studies in the Innervation of the Skin, Jour. Physiol., 1909, xxxviii, 134.

Only those who have engaged in laborious, fatiguing (and even painful) investigations in this field can appreciate the value of such contributions. We are told by one worker that he made and recorded in detail a series of 50,000 separate touches only to discover that the solution he had sought was not to be obtained by that method. It is well for those who sooner or later will meet the problems of skin sensations in some practical aspect, to realize the personal cost at which the modern advances in our knowledge have been achieved.

## THE ACTION OF VITAL STAINS BELONGING TO THE BENZIDIN GROUP

The most striking feature of vital stains is the peculiar selective affinity which they possess for certain cells, and the wide difference and often extreme contrast in the affinity of very closely related dyes. Two views are held concerning the nature of vital staining: The first, advocated by Ehrlich, regards the chemical properties and is based on the assumption of receptors for certain parts of the molecule of the dye. The second, chiefly supported by Overton, takes the physical properties of dyes into account. The tendency at present is to consider the latter as the more probable explanation.

Evans and Schulemann[1] in a recent article report experiments with dyes of the benzidin group, made for the purpose of determining the factors which govern the elective action of these dyes. They found that it is not the position of the hydroxyl group, not the entire periamido complex or the presence of two sulphonic groups which produces the different effects of dyes; in short, that chemical reactions do not determine the results, which rather depend on the physical properties of the stains. They behave in the manner of colloids, and according to the size of the particles in suspension exhibit a difference in the rate of diffusion; positive dyes have a rapid rate, negative dyes little or no diffusion. The most positive dyes of the benzidin group are the disulphonic acids, the sulphonic acid evidently making the dye more soluble and hence more diffusible; for sulphonation of a number of otherwise negative dyes resulted in the production of brilliant positive dyes. The pigmentation of the mucous membranes, observed in workers with silver, rests on the same principle, and is a good illustration that colloidal suspensions of gold, silver and other metals furnish vital stains.

In vital staining the power of diffusion enables the molecules of the dye to reach those cells for which they have an affinity. Singularly enough the polymorphonuclear cells of the blood, the chief cells in phagocytosis, are not vitally stained; the epithelial cells, except those in the proximal convoluted tubules of the kidney, are also refractory, and the cells of the entire nervous system, with the exception of the hypophysis and the choroid plexus, remain unstained. The cells for which the vital stains have an affinity are almost exclusively of the connective-tissue type: the large cells described by Maximow, Ranvier and others; smaller cells, generally known as fibroblasts; the macrophages; cells in the peritoneal lining; the endothelial cells (the Kupffer cells) in the liver, and the interstitial cells of Leydig in the testicles.

The fact that some cells stain deeply, while blood-cells do not take the stain, was made use of by Evans,

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[3] Boring, E. G.: Method in the Investigation of Sensibility after the Section of a Cutaneous Nerve (Preliminary Communication), Proc. Soc. Exper. Biol. and Med., 1914, xi, 69.

[1] Evans and Schulemann: Science, 1914, xxxix, 443.

Bowman and Winternitz[2] to ascertain the part which the Kupffer cells play in the formation of the miliary tubercle in the liver. They found that under the stimulation of the dye alone these cells enlarge, increase in number and finally form giant-cells. But while the reaction in tuberculosis sets in rapidly, Kupffer cells, vitally stained, begin to react only after the third or fourth dose of successive daily injections of dyes, and the final changes occur only after the lapse of many days. The early changes, therefore, which occur in rabbits, vitally stained with trypan-blue and inoculated with bovine tuberculosis by way of the portal circulation, are almost exclusively referable to the tubercle bacillus, the dye serving as an aid in the recognition of the type of cells involved in tubercle formation. As early as half an hour after the inoculation, there occurs an accumulation of polynuclear leukocytes which are unstained. Very soon they are replaced by mononuclear endothelial cells, as revealed by the vital stain, which take active part in the reaction. They grow rapidly as a result of the infection and at the end of thirty-six hours the giant-cell is produced, which, even when fully formed, is still joined to the endothelium of the vessel by protoplasmic strands. The epithelial cells which surround the giant-cell are likewise derived from the endothelial cells, both being easily differentiated from the third type of cell, a mononuclear cell, which the absence of stain denotes as a derivative of the blood. A secondary migration of polynuclear leukocytes takes place when the tubercle degenerates.

These results overthrow the notions held by older writers and not yet entirely abandoned, that wandering cells play the chief part in the formation of the tubercle. In the liver, at least, the giant-cell and the epitheliod cells are shown by vital staining to be derived exclusively from hepatic endothelium. It is probable that other results of interest may be anticipated from the further studies of these dyes whose selective action may show the way for the proper interpretation of a variety of changes.

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The idea that certain mental diseases are associated with a disturbed metabolism of the central nervous system is not a new one. The reason for the absence of comprehensive data from which it might be possible to formulate some tenable hypothesis is not difficult to ascertain. Like other tissues and organs of the body the nervous system doubtless manifests the result of its physiologic activities by the production of certain products of waste and by undergoing certain alterations in composition which must speedily be repaired, if the parts are to continue to function normally. The total mass of the nervous tissues is so small in comparison with that of the metabolic rivals of these tissues, the muscles and glands, that there is little hope at present of detecting the specific contribution of the nervous elements to the total waste of the organism unless it differ from the usual excretory products in quality rather than quantity. If the brain, for example, produced some peculiar chemical katabolite as the result of its activities, it might be possible to detect and measure this specifically in the urine or some other representative of body-waste. But the addition of a little more or less carbon dioxid or urea or creatinin to the contribution furnished by the preponderating bulk of other tissues could scarcely be charged to its real source. Hence it is that the attempts to identify quantitative urinary changes with nervous activity have been almost uniformly futile.

Greater hope of success was awakened when the lamented young American physiologic chemist, Waldemar Koch, began to attack the problem of the metabolism of nervous matter by another method — that of comparative analysis of the tissues in different states of health and disease. After having devoted some time to the nature and distribution of the sulphur derivatives in the nervous system, he turned his attention to the composition of the brain in respect to these components in well-defined manifestations of nervous and mental disorders. In a number of cases of dementia praecox Koch found an unmistakable decrease in the non-protein "neutral sulphur" fraction in definite parts of the brain. He concluded that in this condition there occurs a disturbed oxidative function which is responsible for the appearance of the chemical phenomena.[1]

From a somewhat different point of view Woskressenski[2] has lately studied the possible correlation of pathologic manifestations of the nervous system with an altered composition of the brain substance. There have been reports to the effect that in certain psychoses the "neutral sulphur" of the urine is increased. If this were true, one might expect to find the sulphur content of the brain altered correspondingly; but careful analyses of brains from cases of dementia, epilepsy and youthful psychoses indicate no alteration of the sulphur content as compared with that of mentally normal persons. Whatever may ultimately prove to be the outcome of further investigation of organic diseases of the brain, the existence of disturbed sulphur metabolism in the case of the purely functional disorders is yet to be demonstrated. Indeed, it is unlikely on the basis of the current evidence.

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## HOUSING AND SANITATION

Without doubt, it is a difficult and complicated matter to obtain precise numerical data concerning the influence of housing on health. So many factors come into play in the assembling of vital statistics that a comparison of different localities may give very confusing or even misleading results. Rarely if ever is it possible to separate a city population into groups in which the character of the housing is the only factor affecting morbidity or mortality. A recent editorial in the *American Journal of Public Health*[1] calls attention to the importance of race in influencing the rate of mortality in various city districts, and proclaims the need of caution "in arguing the effect of crowded houses." This is perhaps well enough. The writer of the editorial goes so much further than this, however, that it seems worth while to note the methods by which he reaches his conclusions. Throughout the editorial in question the mistake is apparently made of assuming that because the effect of bad housing is not directly demonstrable by the statistics at hand, therefore it does not exist. "Not only in Boston, but in Glasgow and other important cities of the world has attention already been diverted from crowded houses to other causes, and it is evident that the question of race-component may be a more important one than the questing of housing."

This attitude seems to be based on a fundamental misconception. It does not follow that because the factor of racial susceptibility may be so powerful in some instances as to obscure completely the factor of bad housing, the latter is not operative at all. This mode of argument is like attributing all the typhoid fever in a city with a bad water-supply to the drinking-water, and ignoring the existence of the cases caused by carriers, because the number of such cases cannot be accurately determined or even approximately estimated. This obvious statistical fallacy would be hardly worth commenting on were it not for the extraordinary conclusion of the editorial in question. "For decency's sake, for morality and for ethical reasons, the demand for better housing should never cease, but sanitarians must begin to divert their attention to racial and other factors of population."

This declaration seems to mean that housing is practically negligible as a public-health factor, however important it may be "for morality and for ethical reasons." We do not believe that this position is tenable. The well-known facts concerning the spread by contact of some of the commonest infectious diseases suggest one way at least in which crowding may possess a very definite sanitary significance. It may be added, too, that while the evidence that "tuberculosis houses" or "cancer houses" are agencies in keeping alive specific disease needs careful analysis, it cannot be dismissed as altogether worthless. Especially convincing, however, are the studies which trace a connection between housing conditions and infant mortality. From the early observations of Meinert in Dresden in 1886, down to the recent work of Liefmann and Lindemann, all careful students are of one opinion. In hot weather the babies die in those dwellings which from their situation or construction favor air-stagnation and long-continued high temperature. Narrow streets, small courtyards, insufficient window and door space; in short, crowding of dwellings and crowding within dwellings, are invariably associated with high infant mortality. On the other hand, houses freely exposed to currents of air and rooms into which cooling breezes can enter have a relatively low summer infant death-rate. Few can read the investigations of Meinert, Ballard, Willim, Prausnitz, Liefmann and Kathe without being persuaded that housing exerts a real and important influence on infant mortality. So far from its being desirable for sanitarians to "divert their attention" to other factors, we are of opinion that in many directions the effect of housing on health will repay a more careful study than it has yet received. We regret that the *American Journal of Public Health* should editorially minimize, even to the slightest degree, the importance of the sanitary aspects of housing.

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John Arderne (the later form of the name is Arden) is the first important figure in English medicine and the earliest English surgeon about whom we have any detailed knowledge. He was born early in the fourteenth century, visited many lands, had extensive experience in military surgery during the Hundred Years' War with France, was in some way attached to the suite of John of Gaunt, and left a series of medical and surgical writings in which he shows his knowledge of medical literature. Above all he draws from his own experience helpful directions for other practitioners. His writings contain many absurdities, but some suggestions that show how sensible he was and how carefully observant he had been.

Patients with renal disease, he says, "should put away anger and all strenuous business and intense occupation and all manner of things that disturb the soul or move it in any way save only joy. They should forbear all manner of meats that are heavy of substance and viscous, as old beef that is powdered and hardened with salt, and also fresh pork. They may use good wine and the flesh of calves, especially suckling calves, and also the meat of all fowls save those that are of the lakes and ponds. They may eat of all the scaly fishes, that is, the fish of the rivers and of running waters that are active, but not the heavy fish of standing waters, and they should eschew all manner of foods that are made of pastry and all bread that is baked of dough and all fatness." They should lead an easy life with a full amount of sleep, so that if they pass a bad night they "mowe sleepe be the morne unto IX on the clokke." In the days when men rose at five or, at the latest, six o'clock, nine was of course a very late hour, equivalent now at least to eleven or twelve.

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[1] February, 1914, p. 130.

It is curiously interesting to trace in the history of medicine the tradition of the dietetic difference between red and white meats. This oldest English medical document, written in the period of transition from the older to the modern form of the language, contains an explicit statement of the present-day theory that a marked difference exists between the red and white meats in food value and in irritative properties. The most careful methods of modern chemical investigation have failed to substantiate this theory, but it continues to be a favorite dietetic and therapeutic scapegoat in many of the chronic diseases. In gouty conditions, in so-called chronic rheumatism and above all in nephritis, patients are warned not to eat the red meats. They are told that these contain extractives particularly irritant to all chronically inflamed tissues, especially to inflamed joint-structures and the kidneys. Distinguished chemists have said that since both white and red meat are composed of muscle-tissue and the nitrogenous content of one almost equals that of the other, the only reason for the continuance of the idea of a difference between the two lies in this old clinical tradition.

Arderne seems to have had some idea of organotherapy for he suggests that nephritic patients should "use the reynes [that is, the kidneys] of beasts either roasted or boiled."[1] He recommends particularly that these patients should eat the flesh of a fowl known in the scientific terminology of his time as the *Cauda tremula* or Wagstertte, that is, the familiar wagtail of the modern time. This should be eaten "either fresh or salt or baked without dryness for and it be drye it is nought woorth." He adds further, "And note that the use of the powdir or of the flessch of the Wagstertte availeth gretely to breke the stone in the bladdere." The passage that we have quoted illustrates how much Arderne knew about caring for a nephritic patient. Probably because of his military experience he was particularly expert in genito-urinary surgery, and anticipates many of the modern prescriptions and directions for treatment. Many things have been recommended and all varieties of drugs have been prescribed for a similar purpose since Arderne's time, and not one of them has been any more successful than the dietary suggestions which he offers with so much assurance.

## Current Comment

### AGAIN THE WHITE MAN IN THE TROPICS

At a meeting of the Society of Tropical Medicine and Hygiene in London in October, Sir Havelock Charles, in a discussion of neurasthenia among northern peoples who go to India, made some interesting observations on the failure of such peoples to survive without admixture with the native races or without conforming to the necessities imposed by the climate. "Conforming to the climate," he says, "will probably mean the preservation of a percentage of strains defective in the primitive qualities, and with a liability to nervous weakness." The light-colored peoples are perfectly fitted to cold climates, but when they migrate to hot latitudes they are damaged by the conditions to which they are exposed. It is said that fresh waves of immigration are constantly necessary for the preservation of the purity and predominance of the white race in a tropical climate. Unless these occur, whether the invaders are white or yellow, in the crossing of light and dark races the foreigners have invariably assumed the characteristics of the natives. The climate seems to limit, to define and mold the foreign characteristics in accord with the alterations brought about by the food and the soil. As instances of this are cited the disappearance of the Turanian invaders of India, the failure of any foreign race to establish itself in Egypt, Mexico or Peru. The Chinese in Calcutta and Singapore only maintain their original qualities by importing continuous streams of fresh blood. It is true, Sir Havelock says, referring more or less particularly to the experiment at Panama, that with money and power enough insanitary conditions may be rectified and tropical diseases may be banished, but the heat, the sunlight and the climatic conditions cannot be changed either by the power of money or the power of knowledge. People evolved in the environment of northern latitudes cannot retain their characteristics in a tropical or subtropical climate any more than southern wheat can be made to grow and give its increase in a highland soil. Men of sound constitution can and do live in the tropics, but women and children fare far less well, and the results in the third and fourth generations would be deplorable. Sir Havelock says that the white man is not plastic enough to take up the conditions of the colored man and yet remain white, and without intermarriage his descendants will die out. "His incapacity is based on biologic factors—skin and bone, his blood, his brain and cranial capacity, his nutritive processes. Prolonged residence in a high temperature, with little range, and high relative humidity, with excess of light, will produce both physical and mental deterioration, quite apart from the influence of any parasitic disease." Sir Havelock does not believe the experiment at Panama, with unlimited money and unlimited power, proves anything with reference to the possibilities in India. There, he says, even in the most advanced coast-towns Panama methods could not be applied, while in the interior it would be both economically and politically impossible. Such observations are especially interesting and pertinent in view of what has been said with regard to the possibility of the more extended occupation of our tropical possessions by the people of the United States.

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[1] The original English of the first translation of Arderne, made in the fifteenth century, seems interesting enough to reproduce. It runs as *follows*: "Nefretykes must putte awey ire, hyghly & moche besynesse & almanere thynge that longeth to the soule saff only joye. . . . They schulle forbere almanere metys that ben to grete of substaunse & viscious, as olde beeff that is myghtyly pooudryd & enharded with salt & also fressch porke but yf it lye in salt iiii dayes afore . . . They mowe use grete wyne & the fflessch of calvys that ben soowkynge & also of all ffowlys saff thoo that ben of the lakys & dichys . . . and squamous ffyssches, i. e. fyssch of the rivere, of the stony waterys & rennynge ryveres & not of the standynge waterys & they schulle eschywe almaner mete made of paast [pasties] & all bred that is dowgh bakene & all fatnesse. And they schulle use the reynes of the beeste other roste or sode. And in especiall he schall use a ffoowl that is called *Cauda tremula* or Wagstertte other fressch or salte or bakene without drynesse ffor & it be drye it is nought woorth,

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1. A Clean Record in the Canal Zone, Current Comment, THE JOURNAL A. M. A., Oct. 25, 1913, p. 1544.

forbear all manner of meats that are heavy of substance and viscous, as old beef that is powdered and hardened with salt, and also fresh pork. They may use good wine and the flesh of calves, especially suckling calves, and also the meat of all fowls save those that are of the lakes and ponds. They may eat of all the scaly fishes, that is, the fish of the rivers and of running waters that are active, but not the heavy fish of standing waters, and they should eschew all manner of foods that are made of pastry and all bread that is baked of dough and all fatness." They should lead an easy life with a full amount of sleep, so that if they pass a bad night they "mowe sleepe be the morne unto IX on the clokke." In the days when men rose at five or, at the latest, six o'clock, nine was of course a very late hour, equivalent now at least to eleven or twelve.

It is curiously interesting to trace in the history of medicine the tradition of the dietetic difference between red and white meats. This oldest English medical document, written in the period of transition from the older to the modern form of the language, contains an explicit statement of the present-day theory that a marked difference exists between the red and white meats in food value and in irritative properties. The most careful methods of modern chemical investigation have failed to substantiate this theory, but it continues to be a favorite dietetic and therapeutic scapegoat in many of the chronic diseases. In gouty conditions, in so-called chronic rheumatism and above all in nephritis, patients are warned not to eat the red meats. They are told that these contain extractives particularly irritant to all chronically inflamed tissues, especially to inflamed joint-structures and the kidneys. Distinguished chemists have said that since both white and red meat are composed of muscle-tissue and the nitrogenous content of one almost equals that of the other, the only reason for the continuance of the idea of a difference between the two lies in this old clinical tradition.

Arderne seems to have had some idea of organotherapy for he suggests that nephritic patients should "use the reynes [that is, the kidneys] of beasts either roasted or boiled."[1] He recommends particularly that these patients should eat the flesh of a fowl known in the scientific terminology of his time as the *Cauda tremula* or Wagstertte, that is, the familiar wagtail of the modern time. This should be eaten "either fresh or salt or baked without dryness for and it be drye it is nought woorth." He adds further, "And note that the use of the powdir or of the flessch of the Wagstertte availeth gretely to breke the stone in the bladdere." The passage that we have quoted illustrates how much Arderne knew about caring for a nephritic patient. Probably because of his military experience he was particularly expert in genito-urinary surgery, and anticipates many of the modern prescriptions and directions for treatment. Many things have been recommended and all varieties of drugs have been prescribed for a similar purpose since Arderne's time, and not one of them has been any more successful than the dietary suggestions which he offers with so much assurance.

## Current Comment

### AGAIN THE WHITE MAN IN THE TROPICS

At a meeting of the Society of Tropical Medicine and Hygiene in London in October, Sir Havelock Charles, in a discussion of neurasthenia among northern peoples who go to India, made some interesting observations on the failure of such peoples to survive without admixture with the native races or without conforming to the necessities imposed by the climate. "Conforming to the climate," he says, "will probably mean the preservation of a percentage of strains defective in the primitive qualities, and with a liability to nervous weakness." The light-colored peoples are perfectly fitted to cold climates, but when they migrate to hot latitudes they are damaged by the conditions to which they are exposed. It is said that fresh waves of immigration are constantly necessary for the preservation of the purity and predominance of the white race in a tropical climate. Unless these occur, whether the invaders are white or yellow, in the crossing of light and dark races the foreigners have invariably assumed the characteristics of the natives. The climate seems to limit, to define and mold the foreign characteristics in accord with the alterations brought about by the food and the soil. As instances of this are cited the disappearance of the Turanian invaders of India, the failure of any foreign race to establish itself in Egypt, Mexico or Peru. The Chinese in Calcutta and Singapore only maintain their original qualities by importing continuous streams of fresh blood. It is true, Sir Havelock says, referring more or less particularly to the experiment at Panama, that with money and power enough insanitary conditions may be rectified and tropical diseases may be banished, but the heat, the sunlight and the climatic conditions cannot be changed either by the power of money or the power of knowledge. People evolved in the environment of northern latitudes cannot retain their characteristics in a tropical or subtropical climate any more than southern wheat can be made to grow and give its increase in a highland soil. Men of sound constitution can and do live in the tropics, but women and children fare far less well, and the results in the third and fourth generations would be deplorable. Sir Havelock says that the white man is not plastic enough to take up the conditions of the colored man and yet remain white, and without intermarriage his descendants will die out. "His incapacity is based on biologic factors—skin and bone, his blood, his brain and cranial capacity, his nutritive processes. Prolonged residence in a high temperature, with little range, and high relative humidity, with excess of light, will produce both physical and mental deterioration, quite apart from the influence of any parasitic disease." Sir Havelock does not believe the experiment at Panama, with unlimited money and unlimited power, proves anything with reference to the possibilities in India. There, he says, even in the most advanced coast-towns Panama methods could not be applied, while in the interior it would be both economically and politically impossible. Such observations are especially interesting and pertinent in view of what has been said with regard to the possibility of the more extended occupation of our tropical possessions by the people of the United States.

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## FULL-TIME CLINICAL TEACHERS AT HOPKINS

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[1] "A New Departure in Clinical Teaching," editorial, THE JOURNAL A. M. A., March 14, 1914, p. 853.

[2] Medical News, page 1484, this issue.

## A PRACTICAL BEAUTY HINT

The use of cosmetics and other artificial aids to attractiveness is as old as the human race. To Darwin and students of anthropology in general, decorative applications were a feature of selection — of attraction and sexual selection. The cheek covered with rouge, the heavily elaborated eyebrow and the colored wig, it appears, originated at an early period among the class of courtesans. It has been remarked that "time has taken the taint from the tint," and the wide employment of artificialities to-day would seem to indicate the truth of this observation. The host of advertised medicaments, the beauty columns which grace or disgrace almost every metropolitan newspaper, the display-windows of the various department-stores catering to a large feminine clientèle bear further witness to the fact. The average man of rational clean mind does not approve of cosmetic innovations in his own feminine kinsfolk. He would prefer to see these radical departures from the natural confined to the chorus lady and the public tangoist. The physician always warns against the use of cosmetic preparations, because most of them are dangerous. To him the natural and healthy has always seemed to be typical of beauty. Even the editor of the lay press, however, has seen the ridiculous in the beauty column, and the following satirical excerpt taken from a Southern weekly[1] contains what is perhaps an ideal beauty hint: "For giving the face a good color, get one pot of rouge and one rabbit's foot. Bury them two miles from home and walk out and back once a day to see that they are still there."

## THE PERCENTAGE OF OXYGEN SATURATION OF ARTERIAL BLOOD

Certain statistics with respect to the normal functions of the human body are transmitted from one generation of students to the next with little concern for their subsequent verification. This is true of some of the data relating to the blood of man. Now and then chance furnishes some new item to corroborate an old one in a way that increases respect for the permanence of scientific knowledge. We are taught, for example, that the blood is practically saturated with oxygen as it passes the lungs under ordinary conditions of circulation and respiration. An expert in blood-gas analysis[2] was recently afforded an opportunity to verify this by collecting some arterial blood, uncontaminated either with air or anesthetics, for analysis during the process of a transfusion. The blood proved to be 94 per cent. saturated with oxygen.

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[1] Southern Mercury.

[2] Cooke, A., and Varcreft, J.: Direct Determination of the Percentage Saturation of Arterial Blood with Oxygen in a Normal Person, Jour. Physiol., 1914, xlvii, 35.

**Dirt.**—The causative agents of diseases not being comprehended, naturally, propagating agencies are not understood. That dirt and disease are coexistent is obvious to the sanitarian who knows the relation of cause and effect, but to many people dirt is simply undesirable, not a menace to health.—Dowling, in *Bull. Texas State Board of Health.*

# Medical News

## ALABAMA

**Personal.**—The sanatorium of Dr. Anti C. Watts, Fulton Springs, was destroyed by fire, April 16, with a loss of $6.000, partially covered by insurance.

**State Association Meeting.**—The annual meeting of the Medical Association of the State of Alabama was held in Montgomery, April 21-24, and the following officers were elected: president, Dr. Benjamin B. Simms, Talladega; vice-president, Dr. Jacob U. Ray, Jr., Woodstock; state health officer, Dr. William H. Sanders, Montgomery (reelected). Birmingham was selected as the next place of meeting.

## ARIZONA

**State Association Meeting.**—The twenty-third annual meeting of the Arizona Medical Association was held in Tucson, April 21 and 22, under the presidency of Dr. Ira E. Huffmann, Tucson. The following officers were elected: president, Dr. John W. Flinn, Prescott; vice-presidents, Drs. Robert Ferguson, Bisbee; Alfred J. Murietta, Jerome, and William W. Wilkinson, Phoenix; secretary, Dr. Clarence E. Yount, Prescott (reelected); and councilors, north district, Dr. William H. Bucher, Kingman; south district, Dr. Earl R. McPheeters, Clifton. In the afternoon of April 22 the wives of the visiting physicians were entertained at a Spanish luncheon at the residence of Dr. and Mrs. Ira E. Huffmann, and in the evening were entertained by Dr. and Mrs. Meade Clyne.

## ARKANSAS

**Executive Staff Appointed.**—At a meeting of the Sebastian County Medical Society at Fort Smith, April 14, the following members were appointed to serve as executive staff of the Sparks Memorial Hospital during the ensuing year: Drs. Herbert Moulton, George F. Hynes, J. Gilbert Eberle, St. Cloud Cooper, Robert G. Carlin, Charles S. Holt, John McGinty and A. Earl Hardin.

## CALIFORNIA

**Typhoid Vaccination in California.**—March 1 the State Hygienic Laboratory began issuing typhoid vaccine free to physicians with the idea of attempting to immunize a considerable portion of the population. Typhoid fever was responsible for 500 deaths in the state in 1913. With the vaccine sent out is a circular of instruction as to how it should be used. The vaccine as employed in California is prepared according to the method of Gay and Claypole of the University of California and is made by treating a culture of typhoid bacilli with immune serum, killing with alcohol, grinding and removing certain undesirable constituents. This vaccine has been shown to produce fewer unpleasant symptoms than other vaccines and its protective qualities are said to be greater. Each c.c. of the vaccine represents 750 million bacteria.

## CONNECTICUT

**Personal.**—Dr. George H. Bodley has been appointed and Dr. Henry Bray reappointed a member of the Board of Health of New Britain.

**New Officers.**—Windham County Medical Association, one hundred and twenty-first annual meeting at Willimantic, April 16: president, Dr. Charles E. Hill, East Killingly; secretary-treasurer, Dr. William P. S. Keating, Willimantic. ——Fairfield County Medical Association, one hundred and twenty-second annual meeting, at Bridgeport, April 14: president, Dr. George H. Noxon, Darien; secretary, Dr. Eli B. Ives, Bridgeport.——Hartford County Medical Association, one hundred and twenty-second annual meeting at Hartford, April 7: president, Dr. William R. Miller, Southington; secretary-treasurer, Dr. Albert R. Keith, Hartford.——Tolland County Medical Society, one hundred and twenty-second annual meeting at Rockville, April 21: president, Dr. Cyrus B. Newton, Stafford Springs; secretary-treasurer, Dr. Eli P. Flint, Rockville.——New Britain Medical Society, organized recently: president, Dr. George H. Bodley.

## DELAWARE

**Forty Years in Practice.**—Dr. Willard Springer, Wilmington, celebrated April 22 the fortieth anniversary of his entering into practice in Wilmington. A dinner was given in his honor by the Newcastle County Medical Society at which Dr. Springer read a paper entitled: "Forty Years in the Practice of Medicine."

**Personal.**—Dr. L. August H. Bishop has been elected president and Edwin S. Anderson, vice-president, of the Board of Health of Dover.——Dr. Stacy B. Collins, Seaford, has been appointed a member of the state tuberculosis commission.——Dr. Frank H. Edsall, Wilmington, as a result of a competitive examination, has been appointed superintendent of the Department of Health of Jersey City, N. J.——Dr. Joseph P. Pyle, Wilmington, has gone abroad.

## GEORGIA

**New Officers.**—Ware County Medical Society: president, Dr. James J. Beaton, to fill the vacancy caused by the death of Dr. Marvin M. Johnson; vice-president, Dr. Paul P. Lane, all of Waycross.

**Personal.**—Drs. Archie Griffin, James M. Smith and Joseph H. Thomas have been reelected members of the Board of Health of Valdosta.——Dr. Victor H. Bassett was elected president, April 21, of the newly organized Anti-Tuberculosis Association of Savannah.

**Health Report of Augusta, Ga.**—That Augusta has an efficient health department is shown by the report of that body for the year 1913. This report, a pamphlet of 80 pages, shows that much improvement in health conditions occurred over previous years. The population of Augusta is 51,000, of which 27,400 are white and 23,600 negroes. In 1913 there were 377 white deaths, a ratio of 13.7 per 1,000, and 491 negro deaths, a ratio of 20 per 1,000. This gives an average of 17 per 1,000 which is a reduction of 1.6 per 1,000 over the previous year. Attention is called in the report of the reduction in deaths from typhoid and malaria. For malaria there were 12 deaths in 1913 as against 27 in 1912. For typhoid, 9 in 1913 against 14 in 1912. A gratifying feature is the reduction of mortality of children under 5 years of age. In 1912 there were 221 deaths while in 1913 there were 165. On account of careful school inspection the case incidence and death-rate among children from contagious diseases have been very satisfactory. There were 32 deaths from pellagra during the year.

## ILLINOIS

**New Officers.**—Jersey County Medical Society at Jerseyville, April 23: president, Dr. Augustus K. Van Horne; secretary, Dr. Frederick M. Doyle, both of Jerseyville.

**Personal.**—Dr. George Pennington, West Alton, was thrown from a wagon and seriously injured, April 23.——Dr. Arthur Parsons, Geneseo, suffered the fracture of several ribs and severe cuts and bruises by the overturning of his automobile, April 21.

**Hospital Notes.**—At a meeting of the board of directors of Hillsboro Hospital Association, April 20, Drs. George A. Clotfelter, Zeb V. Kimball and Homer A. Seymour were elected members of the building committee for the new hospital, which is to be ready for occupancy early in November. ——The new Deaconess Hospital, Peoria, was formally opened, April 21. In the evening a meeting of the Peoria Medical Society was held in the institution.

**Medical Reserve Corps Meeting.**—The annual meeting of the Medical Reserve Corps, United States Army, Illinois Division, was held April 30, under the presidency of Lieut. Junius C. Hoag, and the following officers were elected: president, Lieut. William L. Baum; vice-president, Lieut. William H. Wilder; secretary, Lieut. John A. Hornsby (reelected), and councilors, Lieuts. Louis E. Schmidt and Frank P. Lynch, all of Chicago. Among the speakers were Col. William Stephenson, M. C., U. S. Army, Col. Philip F. Harvey, U. S. Army (retired), Capt. Charles C. Billingslea, M. C., U. S. Army, and Lieuts. Patrick J. H. Farrell and Frank Billings, M. R. C., U. S. Army.

### Chicago

**Railroad to Build Hospital.**—The Illinois Central Railroad announces that ground has been purchased on Stony Island Avenue, facing Jackson Park, for a hospital to be established by the Illinois Central Railroad, the erection and equipment of which will cost more than $400,000. The building is to be six stories high and will be primarily for the benefit of employees of the railroad and passengers injured on the railroad.

**Dr. Frank Honored.**—Dr. Jacob Frank, surgeon-general of Illinois, was guest of honor at a banquet given April 28 any city in the United States which is sufficiently cleanly and healthy for them to live in? Let us hope that the ten thousand Americans, returning to this country after a practical demonstration of what modern scientific knowledge can do to prevent disease, may prove to be the little leaven which will leaven the entire lump. If this is the case, the indirect benefits of the Panama Canal will be incomparably greater than its commercial or military value.

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Two months ago,[1] comment was made relative to the new plan proposed for the employment in the Medical Department of Johns Hopkins University of full-time clinical teachers. The plan, it will be remembered, is that the heads of the departments of medicine, surgery and pediatrics are to give their undivided time to teaching and research. They will be free to act as consultants in private cases, but any fees earned from such consultations are to be turned into the university treasury. It is now announced[2] that the three positions referred to have been filled. The chair of medicine has been accepted by Dr. Theodore C. Janeway, Bard professor of medicine in Columbia University and director of the Medical Division of the Presbyterian Hospital of New York. The chair of surgery will continue to be held by Dr. William S. Halsted. The chair of pediatrics has been accepted by Dr. John Howland, formerly associate in pediatrics at Columbia University and later professor of pediatrics at the Washington University Medical School, St. Louis. A year ago Dr. Howland was called to be physician-in-charge of the Harriet Lane Home for Invalid Children — the pediatric clinic of the Johns Hopkins Medical School. No full-time scheme for any of the departments referred to would be complete unless an adequate income was at hand, not only to support the professors, but also to provide the needed assistants, laboratories, equipment, etc. Each department would need to be completely organized and each member of the organization would require facilities adapted to his particular kind of work. The sum involved is so large that even those who are advocating this plan think it improbable or even inadvisable that the scheme at present be generally adopted. The full-time organization, according to the plan proposed, should be put to the test, and its superiority proved before being given any general recognition. It is quite generally recognized that some reorganization whereby clinical teaching is placed on a more academic basis is highly desirable, but there are many who have their doubts regarding what is now referred to as "the Hopkins plan." Clinical progress must be stimulated and men must be trained willing to devote themselves more largely to science and humanity on terms more equal to those obtaining in the laboratory branches. If the Hopkins plan brings about these results it will have demonstrated its value and indicate that the plan is worthy of a wider adoption.

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[1] "A New Departure in Clinical Teaching," editorial, The Journal A. M. A., March 14, 1914, p. 853.

[2] Medical News, page 1484, this issue.

## A PRACTICAL BEAUTY HINT

The use of cosmetics and other artificial aids to attractiveness is as old as the human race. To Darwin and students of anthropology in general, decorative applications were a feature of selection — of attraction and sexual selection. The cheek covered with rouge, the heavily elaborated eyebrow and the colored wig, it appears, originated at an early period among the class of courtesans. It has been remarked that "time has taken the taint from the tint," and the wide employment of artificialities to-day would seem to indicate the truth of this observation. The host of advertised medicaments, the beauty columns which grace or disgrace almost every metropolitan newspaper, the display-windows of the various department-stores catering to a large feminine clientèle bear further witness to the fact. The average man of rational clean mind does not approve of cosmetic innovations in his own feminine kinsfolk. He would prefer to see these radical departures from the natural confined to the chorus lady and the public tangoist. The physician always warns against the use of cosmetic preparations, because most of them are dangerous. To him the natural and healthy has always seemed to be typical of beauty. Even the editor of the lay press, however, has seen the ridiculous in the beauty column, and the following satirical excerpt taken from a Southern weekly[1] contains what is perhaps an ideal beauty hint: "For giving the face a good color, get one pot of rouge and one rabbit's foot. Bury them two miles from home and walk out and back once a day to see that they are still there."

## THE PERCENTAGE OF OXYGEN SATURATION OF ARTERIAL BLOOD

Certain statistics with respect to the normal functions of the human body are transmitted from one generation of students to the next with little concern for their subsequent verification. This is true of some of the data relating to the blood of man. Now and then chance furnishes some new item to corroborate an old one in a way that increases respect for the permanence of scientific knowledge. We are taught, for example, that the blood is practically saturated with oxygen as it passes the lungs under ordinary conditions of circulation and respiration. An expert in blood-gas analysis[2] was recently afforded an opportunity to verify this by collecting some arterial blood, uncontaminated either with air or anesthetics, for analysis during the process of a transfusion. The blood proved to be 94 per cent. saturated with oxygen.

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[1] Southern Mercury.

[2] Cooke, A., and Varcroft, J.: Direct Determination of the Percentage Saturation of Arterial Blood with Oxygen in a Normal Person, Jour. Physiol., 1914, xlvii, 35.

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**Dirt.**—The causative agents of diseases not being comprehended, naturally, propagating agencies are not understood. That dirt and disease are coexistent is obvious to the sanitarian who knows the relation of cause and effect, but to many people dirt is simply undesirable, not a menace to health.—Dowling, in *Bull. Texas State Board of Health.*

# Medical News

## ALABAMA

**Personal.**—The sanatorium of Dr. Anti C. Watts, Fulton Springs, was destroyed by fire, April 16, with a loss of $6.000, partially covered by insurance.

**State Association Meeting.**—The annual meeting of the Medical Association of the State of Alabama was held in Montgomery, April 21-24, and the following officers were elected: president, Dr. Benjamin B. Simms, Talladega; vice-president, Dr. Jacob U. Ray, Jr., Woodstock; state health officer, Dr. William H. Sanders, Montgomery (reelected). Birmingham was selected as the next place of meeting.

## ARIZONA

**State Association Meeting.**—The twenty-third annual meeting of the Arizona Medical Association was held in Tucson, April 21 and 22, under the presidency of Dr. Ira E. Huffmann, Tucson. The following officers were elected: president, Dr. John W. Flinn, Prescott; vice-presidents, Drs. Robert Ferguson, Bisbee; Alfred J. Murietta, Jerome, and William W. Wilkinson, Phoenix; secretary, Dr. Clarence E. Yount, Prescott (reelected); and councilors, north district, Dr. William H. Bucher, Kingman; south district, Dr. Earl R. McPheeters, Clifton. In the afternoon of April 22 the wives of the visiting physicians were entertained at a Spanish luncheon at the residence of Dr. and Mrs. Ira E. Huffmann, and in the evening were entertained by Dr. and Mrs. Meade Clyne.

## ARKANSAS

**Executive Staff Appointed.**—At a meeting of the Sebastian County Medical Society at Fort Smith, April 14, the following members were appointed to serve as executive staff of the Sparks Memorial Hospital during the ensuing year: Drs. Herbert Moulton, George F. Hynes, J. Gilbert Eberle, St. Cloud Cooper, Robert G. Carlin, Charles S. Holt, John McGinty and A. Earl Hardin.

## CALIFORNIA

**Typhoid Vaccination in California.**—March 1 the State Hygienic Laboratory began issuing typhoid vaccine free to physicians with the idea of attempting to immunize a considerable portion of the population. Typhoid fever was responsible for 500 deaths in the state in 1913. With the vaccine sent out is a circular of instruction as to how it should be used. The vaccine as employed in California is prepared according to the method of Gay and Claypole of the University of California and is made by treating a culture of typhoid bacilli with immune serum, killing with alcohol, grinding and removing certain undesirable constituents. This vaccine has been shown to produce fewer unpleasant symptoms than other vaccines and its protective qualities are said to be greater. Each c.c. of the vaccine represents 750 million bacteria.

## CONNECTICUT

**Personal.**—Dr. George H. Bodley has been appointed and Dr. Henry Bray reappointed a member of the Board of Health of New Britain.

**New Officers.**—Windham County Medical Association, one hundred and twenty-first annual meeting at Willimantic, April 16: president, Dr. Charles E. Hill, East Killingly; secretary-treasurer, Dr. William P. S. Keating, Willimantic. ——Fairfield County Medical Association, one hundred and twenty-second annual meeting, at Bridgeport, April 14: president, Dr. George H. Noxon, Darien; secretary, Dr. Eli B. Ives, Bridgeport.——Hartford County Medical Association, one hundred and twenty-second annual meeting at Hartford, April 7: president, Dr. William R. Miller, Southington; secretary-treasurer, Dr. Albert R. Keith, Hartford.——Tolland County Medical Society, one hundred and twenty-second annual meeting at Rockville, April 21: president, Dr. Cyrus B. Newton, Stafford Springs; secretary-treasurer, Dr. Eli P. Flint, Rockville.——New Britain Medical Society, organized recently: president, Dr. George H. Bodley.

## DELAWARE

**Forty Years in Practice.**—Dr. Willard Springer, Wilmington, celebrated April 22 the fortieth anniversary of his entering into practice in Wilmington. A dinner was given in his honor by the Newcastle County Medical Society at which Dr. Springer read a paper entitled: "Forty Years in the Practice of Medicine."

**Personal.**—Dr. L. August H. Bishop has been elected president and Edwin S. Anderson, vice-president, of the Board of Health of Dover.——Dr. Stacy B. Collins, Seaford, has been appointed a member of the state tuberculosis commission.——Dr. Frank H. Edsall, Wilmington, as a result of a competitive examination, has been appointed superintendent of the Department of Health of Jersey City, N. J.——Dr. Joseph P. Pyle, Wilmington, has gone abroad.

## GEORGIA

**New Officers.**—Ware County Medical Society: president, Dr. James J. Beaton, to fill the vacancy caused by the death of Dr. Marvin M. Johnson; vice-president, Dr. Paul P. Lane, all of Waycross.

**Personal.**—Drs. Archie Griffin, James M. Smith and Joseph H. Thomas have been reelected members of the Board of Health of Valdosta.——Dr. Victor H. Bassett was elected president, April 21, of the newly organized Anti-Tuberculosis Association of Savannah.

**Health Report of Augusta, Ga.**—That Augusta has an efficient health department is shown by the report of that body for the year 1913. This report, a pamphlet of 80 pages, shows that much improvement in health conditions occurred over previous years. The population of Augusta is 51,000, of which 27,400 are white and 23,600 negroes. In 1913 there were 377 white deaths, a ratio of 13.7 per 1,000, and 491 negro deaths, a ratio of 20 per 1,000. This gives an average of 17 per 1,000 which is a reduction of 1.6 per 1,000 over the previous year. Attention is called in the report of the reduction in deaths from typhoid and malaria. For malaria there were 12 deaths in 1913 as against 27 in 1912. For typhoid, 9 in 1913 against 14 in 1912. A gratifying feature is the reduction of mortality of children under 5 years of age. In 1912 there were 221 deaths while in 1913 there were 165. On account of careful school inspection the case incidence and death-rate among children from contagious diseases have been very satisfactory. There were 32 deaths from pellagra during the year.

## ILLINOIS

**New Officers.**—Jersey County Medical Society at Jerseyville, April 23: president, Dr. Augustus K. Van Horne; secretary, Dr. Frederick M. Doyle, both of Jerseyville.

**Personal.**—Dr. George Pennington, West Alton, was thrown from a wagon and seriously injured, April 23.——Dr. Arthur Parsons, Geneseo, suffered the fracture of several ribs and severe cuts and bruises by the overturning of his automobile, April 21.

**Hospital Notes.**—At a meeting of the board of directors of Hillsboro Hospital Association, April 20, Drs. George A. Clotfelter, Zeb V. Kimball and Homer A. Seymour were elected members of the building committee for the new hospital, which is to be ready for occupancy early in November. ——The new Deaconess Hospital, Peoria, was formally opened, April 21. In the evening a meeting of the Peoria Medical Society was held in the institution.

**Medical Reserve Corps Meeting.**—The annual meeting of the Medical Reserve Corps, United States Army, Illinois Division, was held April 30, under the presidency of Lieut. Junius C. Hoag, and the following officers were elected: president, Lieut. William L. Baum; vice-president, Lieut. William H. Wilder; secretary, Lieut. John A. Hornsby (reelected), and councilors, Lieuts. Louis E. Schmidt and Frank P. Lynch, all of Chicago. Among the speakers were Col. William Stephenson, M. C., U. S. Army, Col. Philip F. Harvey, U. S. Army (retired), Capt. Charles C. Billingslea, M. C., U. S. Army, and Lieuts. Patrick J. H. Farrell and Frank Billings, M. R. C., U. S. Army.

### Chicago

**Railroad to Build Hospital.**—The Illinois Central Railroad announces that ground has been purchased on Stony Island Avenue, facing Jackson Park, for a hospital to be established by the Illinois Central Railroad, the erection and equipment of which will cost more than $400,000. The building is to be six stories high and will be primarily for the benefit of employees of the railroad and passengers injured on the railroad.

**Dr. Frank Honored.**—Dr. Jacob Frank, surgeon-general of Illinois, was guest of honor at a banquet given April 28 by his friends of the medical profession of Chicago, and the Medical Reserve Corps, U. S. Army and Illinois National Guard. Dr. Charles P. Caldwell, president of the Chicago Medical Society, was toastmaster, and responses were made to toasts by Drs. A. Augustus O'Neill, Patrick J. H. Farrell, John B. Murphy, Arthur M. Corwin and Noble M. Eberhart. Dr. Martin M. Ritter, in behalf of those present, presented Dr. Frank with a sabre.

**The Chicago Surgical Society.**—The secretary of the Chicago Surgical Society calls attention to an item which appeared in these columns two weeks ago. The item stated that the Chicago Surgical Society had changed its name to the Chicago Academy of Surgery. The Chicago Surgical Society was organized in 1900 and still exists under that name. The society referred to in our previous item is a recently organized one, which incorporated under the name of the old Chicago Surgical Society. A bill to restrain the new society from using the name "Chicago Surgical Society" was presented to the court which sustained the contention, making it necessary for the new society to change its name.

## LOUISIANA

**New Officers.**—Louisiana Railroad Surgeons Association at New Orleans: president, Dr. Frederick W. Parham, New Orleans.

**State Society Meeting.**—The thirty-fifth annual meeting of the Louisiana State Medical Society was held in New Orleans, April 20-23, under the presidency of Dr. Fred J. Mayer, Opelousas. On the Sunday before the opening of the meeting a health symposium was held in Tulane Theater on "The Relation of Religion to Hygiene and State Medicine," at which a number of the most prominent clergymen of New Orleans delivered addresses. Lake Charles was selected as the next place of meeting and the following officers were elected: president, Dr. George S. Bel, New Orleans; vice-presidents, Drs. J. Ashton Blanchard, Shreveport; David J. McAnn, Atkins; Everard M. Mahler, New Orleans; secretary-treasurer, Dr. Laurence R. De Buys, New Orleans (reelected), and councilors, first district, Dr. Wilkes H. Knolle, New Orleans; second district, Dr. Homer J. Dupuy; third district, Dr. Leon J. Menville, Houma; fourth district, Dr. Hardy H. Smith, Cotton Valley; fifth district, Dr. Oswald W. Cosby, Monroe; sixth district, Dr. J. N. Lee, Marthaville; seventh district, Dr. Charles A. Gardiner, Sunset, and eighth district, Dr. E. Lee Henry, Lacompte.

## MARYLAND

**Sydenham Contract Awarded.**—The contract for the new ward building at Sydenham has been awarded. The cost will be $17,225. The building will be used as a detention house instead of a measles ward. The new building will make Sydenham more modern and will provide quarters for the nurses.

**New State Officers.**—At the annual meeting of the Medical and Chirurgical Faculty the following officers were elected: president, Dr. James W. Humrichouse, Hagerstown; vice-presidents, Drs. Alexius McGlannan, Baltimore; James E. Deets, Clarksburg, and R. E. Lee Hall, Pocomoke City; treasurer, Dr. William S. Gardner, Baltimore; secretary, Dr. John Ruhrah, Baltimore; delegate to the American Medical Association, Dr. J. Hall Pleasants, Baltimore; alternate, Dr. D. E. Stone, Mount Pleasant; members of State Board of Medical Examniers, Drs. John McP. Scott, Hagerstown, and Henry M. Fitshugh, Westminster; councilors, Drs. Charles O'Donovan, Baltimore; Peregrine Wroth, Jr., Hagerstown; Lewis C. Carrico, Bryantown, and William S. Archer, Bel Air.

**Janeway at Johns Hopkins.**—Dr. Theodore C. Janeway, now Bard professor of medicine in Columbia University and director of the medical department of the Presbyterian Hospital of New York, has been appointed professor of medicine in Johns Hopkins University, succeeding Dr. Lewellys F. Barker, who, however, will retain his connection with the university in an important capacity. The appointment will take effect at the close of the present academic year, and Dr. Janeway will probably come to Baltimore in the summer to organize his new department. The school is most fortunate in securing the services of so distinguished a clinical teacher, investigator and physician to join with Drs. William S. Halstead and John Howland in putting into effect the reform in medical education made possible by the gift of $1,500,000 by the General Education Board. The establishment of the department of medicine, of surgery and of pediatrics on the full-time or university basis was made possible by the gift of $1,500,000 to be known as the William H. Welch endowment for clinical education and research by the General Education Board last October. The chairs of surgery and of pediatrics on the reorganized basis have already been filled by the continuance of Dr. William S. Halstead as professor of surgery and Dr. John Howland as professor of pediatrics under the new conditions. Drs. Barker and Thayer, who were unable to accept the university professorship under the new conditions, will continue their connection with the hospital and university.

### Baltimore

**Personal.**—Dr. J. H. Mason Knox has been appointed a member of the Board of State Aid and Charities.——Dr. Hugh Hampton Young has been reappointed a member of the lunacy commission.——Dr. Albert T. Chambers has been reappointed by the mayor a member of the school board.——Dr. John Howland has sailed from New York for Bremen.——Dr. Alexander D. McConachie will spend the summer traveling in Europe.

## MASSACHUSETTS

**Resignation of Professor Briggs.**—Dr. Frederic M. Briggs has tendered his resignation as professor of surgery and secretary of the faculties of Tufts College Medical and Dental schools, to take effect Sept. 1, 1914.

**Personal.**—Dr. Edward J. Mahoney, Springfield, has succeeded Dr. Simon J. Russell, resigned, as health officer of Springfield. Dr. Russell expects to spend the year in study abroad.——Dr. and Mrs. Edward R. Cutler, Bridgewater, celebrated their golden weeding anniversary April 27.

**New Officers.**—West Roxbury District Medical Club, April 15: president, Dr. Edward N. Libbey, Roxbury; secretary-treasurer, Dr. Francis P. McKenna, Jamaica Plains.——Plymouth District Medical Society at Brockton, April 16: president, Dr. Charles E. Lovell, Whitman; secretary-treasurer, Dr. Alfred C. Smith, Brockton, both reelected.——Brockton Medical Society, April 23: president, Dr. John R. Noyes; secretary, Dr. Harrison A. Chase.

## MICHIGAN

**Sanatorium Opened.**—The new municipal sanatorium of Kalamazoo, erected at a cost of $45,000, was officially opened April 21.

**Fund Raised for Medical Mission.**—The campaign for a fund for the University of Michigan Medical Mission at Buzrah, Arbia, closed April 23 with subscriptions amounting to $4,850.

**Shurly Tablet Unveiled.**—A mosaic tablet, bearing an inscription describing the sterling qualities of Dr. Ernest L. Shurly, Detroit, was unveiled in the vestibule of the Detroit College of Medicine, April 19. Dr. J. Henry Carstens presided. Dr. Shurly's niece, Mrs. Kinzie Bates, Asheville, N.C., was the donor of the tablet.

**Appropriations for Detroit Hospitals.**—The Committee on Public Health and Hospitals of the Board of Estimates of the Detroit City Council, approved the appropriation of $715,000 for hospital extensions, including $400,000 for a tuberculosis hospital, $100,000 for the first unit of a new municipal hospital, and $125,000 for the purchase of 25 additional acres of land adjoining the present hospital site.

**Personal.**—Dr. S. Rudolph Light has been elected president of the Kalamazoo Anti-Tuberculosis Society.——Dr. Henry V. Tutton, Benton Harbor, who was operated on for appendicitis recently at Mercy Hospital, has recovered and resumed practice.——Dr. Bret C. Nottingham, Lansing, is reported to be critically ill with carcinoma of the stomach in Harper Hospital, Detroit.——Dr. Walter L. Slack has succeeded the late Dr. Daniel B. Cornell as eye and ear surgeon of the Pere Marquette System at Saginaw.

## MINNESOTA

**New Officers.**—Stearns-Benton County Medical Society at St. Cloud, April 16: president, Dr. Pierre A. Hilbert, Melrose; secretary, Dr. John C. Boehm, St. Cloud.

**New Sanatorium.**—The Polk County Sanatorium Commission has purchased 35 acres of land south of Red River and west of Crookston, for $2,000 an acre, as a site for the county tuberculosis sanatorium.

**Foreign Surgeons in Rochester.**—A special train brought nearly a hundred of the prominent surgeons of Europe to

Rochester, April 22, where they spent two days attending clinics of the Mayo brothers.

**Personal.**—Dr. William J. Mayo, Rochester, sailed for Europe April 30.——Dr. Harry P. Packard, physician in charge of the Mission Hospital, Oroomiah, Persia, has been visiting in Rochester and Minneapolis. He will return to Persia next month.——Dr. John Milton Armstrong, St. Paul, has returned from abroad.——Dr. Arnold Schwyzer and family, St. Paul, have sailed for Europe.

**Public Health School Planned.**—Plans for the establishment of a school of public health have been adopted by the administrative board of the medical school of the University of Minnesota. The function of the proposed school will be to consider and recommend measures pertaining to the health of the university community and to put into effect university regulations, either directly or by advisement.

**Reorganization of Divisions of State Board.**—A reorganization of the laboratory, epidemiologic and sanitary engineering divisions of the State Board of Health was perfected at a meeting held in St. Paul, April 14. The work of the laboratory division will hereafter be divided between the two divisions of infectious diseases and sanitation. Dr. Albert J. Chesley will retain his position as head of the division of infectious diseases, and in addition will take over the laboratory work which has to do with diagnosis of diseases. Dr. Robert H. Mullin, in charge of the present laboratory division, and Prof. F. H. Bass, head of the sanitation division, will retire that they may devote their entire time to their teaching work at the University of Minnesota. The new sanitary division will be under the direction of Mr. H. A. Whittaker, assistant director and chief chemist of the laboratory division.

## NEW MEXICO

**Typhus Fever.**—The epidemic of typhus fever in the Navajo settlement at Canoncito Cojo has subsided. The last Indian to have the disease became ill March 12 and on March 28 the fever had disappeared. In all there were twenty-seven cases, eleven adults and sixteen children. Four cases were fatal. Of the dead, two were adults and two were children. The deaths occurred in the early stages of the epidemic. The prompt and strict measures taken in the beginning of the epidemic by the superintendent of the United States Indian Service, P. T. Lonergan, proved efficacious. The destruction of practically the entire Indian settlement was necessary to terminate the epidemic. On the order of Dr. Day, sixteen "hogans" were burned and new huts were erected in a different locality to take their place. The clothing of the Indians was also burned and new clothing supplied. Dr. Day believes the disease originated from the visit of an old Mexican to the settlement.

## NEW YORK

**New Officers.**—Rochester Medical Society, April 14: president, Dr. William B. Jones; secretary, Dr. David B. Jewett.

**Tuberculosis Camp to Open.**—The Watertown Anti-Tuberculosis Society is preparing for the opening of its camp at Huntingtonville. The camp will be open July 1, and it is expected that the hospital will be ready for occupancy before next winter.

**State Society Meeting.**—The one hundred and eighth annual meeting of the Medical Society of the State of New York was held in New York City, April 28-30, under the presidency of Dr. William F. Campbell, Brooklyn. The following officers were elected: president, Dr. Grover W. Wende, Buffalo; vice-presidents, Drs. Myron B. Palmer, Rochester; Samuel W. S. Toms, Nyack, and Robert Elliott, Willard; secretary, Dr. Wisner R. Townsend, New York City (reelected); treasurer, Dr. Alexander Lambert, New York City (reelected). The proposition to place laymen in charge of the medical publications of the society was voted down by the House of Delegates.

**Women Elect Officers.**—The eighth annual meeting of the Women's Medical Society of New York was held in New York City, April 27, under the presidency of Dr. Marion Craig Potter, Rochester, who had for the subject of her presidential address a survey of the medicolegal work of women physicians during the past twenty years in cases of physical injury in New York State. The following officers were elected: Dr. Angenette Perry, New York City, president; Dr. Evelyn Baldwin, Rochester, second vice-president; Dr. Cornelia Thomas, Rochester, treasurer. At the public meeting Dr. Lillian South, Bowling Green, Ky., delivered an illustrated lecture on hookworm.

### New York City

**First Typhus Death.**—The first death from typhus fever since the present visitation occurred April 27, the victim being a Greek, 43 years of age, who boarded the steamship *Madonna* at Naples.

**New Dean for University and Bellevue.**—It is reported that Dr. William Hallock Park has been named by the Council of New York University as the dean of the University and Bellevue Hospital Medical College, to take the place of Dr. Egbert LeFevre, who died March 30.

**Exhibition of Lincoln Hospital Work.**—An exhibition of the industrial work done in the Home department of the Lincoln Hospital and Home at One Hundred and Forty-First Street and Southern Boulevard, was held April 22-24. This work comprised the product of the industrial department and consisted of woven rugs, garden and other baskets, etc.

**Safety Medal Conferred on Surgeon-General Gorgas.**—The American Museum of Safety at its meeting April 27, conferred the Dr. Louis Livingston Seaman medal on Surgeon-General William C. Gorgas for his Canal Zone achievements. In conferring the medal Prof. Frederick R. Hutton ranked Dr. Gorgas as the man who had done the greatest good to humanity in this generation.

**Train Teachers for Feeble-Minded.**—New York University is organizing a department offering a two-years' course for the training of teachers for feeble-minded and backward children. The courses will be organized under the School of Pedagogy but will have the cooperation of the Medical School, Summer School and Extramural Division. The program is tentatively divided into five courses: Physical and mental factors, psychologic factors, sociologic factors and industrial factors.

**Care of Convalescents.**—At a meeting of the Monday Club, April 20, Dr. Frederick L. Brush, superintendent of the Winifred Masterson Burke Relief Foundation, outlined the plans which the directors are making for the care of convalescents: the erection of an extensive plant at White Plains, where an estate of 60 acres has been secured. Thirteen out of the contemplated twenty-two buildings have already been finished, and when completed the institution will be able to care for 3,000 convalescents a year.

**Food Standard Urged.**—The Department of Health urges the adoption of a food standard and points out that this is an age of standardization and that it is more important that food should be standardized than that many other articles should be subjected to this test. By standardization of food would be meant the definition of each food in terms of its chemical and physical components. New York State has already standardized wine, milk, butter, honey, cider, vinegar, evaporated apples and maple sugar. The City of New York also defines "spot eggs;" otherwise there are no food standards in this state.

**The National Commission of Milk Standards.**—This Commission at its recent meeting in this city condemned the present methods of manufacturing ice cream and advised a campaign for the pure product. Examinations were made of some two hundred samples of ice cream from stores, restaurants and hotels and it was stated that the percentage of bacteria varied from 1,000 to 21,000,000 per cubic centimeter. The small stores of the East Side sold the poorest ice cream and that used by druggists at the big soda fountains was also found to be of poor quality. It was stated that while the butter supplied to the city was better than the ice cream, there was much room for improvement. The Commission recommended the pasteurization of all milk used in the manufacture of butter or ice cream.

**France Honors Flexner.**—Dr. Simon Flexner, Director of the Laboratories of the Rockefeller Institute for Medical Research, has received notice through the French Ambassador in Washington that the Cross of Chevalier of the Legion of Honor has been conferred on him by the President of the French Republic. This honor has been bestowed in recognition of the services which Dr. Flexner has rendered to medical science through his own discoveries and through his administration of the Rockefeller Institute. Special mention is made in the award of the assistance given to France at the time of the epidemic of cerebrospinal meningitis, which prevailed in 1909, by sending to the Pasteur Institute in Paris a supply of antimeningitis serum which was successfully used in combating that epidemic.

**Plans Large Cancer Research Institution.**—Cornell University Medical College and the General Memorial Hospital are planning for a large cancer hospital. There will be available for the purpose a large supply of radium and unique facilities for laboratory research. It has been announced that more than $1,000,000, exclusive of the value of the hospital buildings, have been provided. Allan A. Ryan has contributed $50,000 of this sum and it is understood that Dr. James Douglas has contributed a much larger sum and has made arrangements to turn over to the hospital his half interest in the first 7 grams of radium which he and Dr. Howard Kelly were to get from the output of Paradox Valley in the course of the government radium tests. There are at the present time 100 milligrams of radium available for the work. The management of the hospital will be under the Faculty of the Cornell University Medical School.

**Health Guards for Children.**—Late in 1913 a request was made that the Board of Education permit the posting of a copy of the Health Department's circular containing information regarding the precautions to be taken against the spread of contagious diseases. The Board of Education at once gave its consent to this measure and now has asked that such a circular be placed in the hands of every child. In response to this request 800,000 copies of an abridged and simplified circular are being prepared for circulation. By this means the information will be carried to many homes. The Bureau of Infectious Diseases recently made a study to ascertain what proportion of secondary cases of contagious diseases follow when patients are treated in their homes or in hospitals. It was found in diphtheria that when the patients were quarantined at home the percentage of secondary cases was 13 per cent., when the patients were removed to hospitals, 1 per cent. In scarlet fever the secondary cases where the child was quarantined at home were 9 per cent.; in hospitals 3 per cent. The percentage in measles was 10 per cent. greater when the patients were quarantined at home.

## NORTH CAROLINA

**Personal.**—While fording a swollen river below Taylorsville, Dr. A. M. Edwards of that place narrowly escaped owning, but was saved by his horse, which swam to the posite bank.——Dr. Samuel W. Stevenson, Mooresville, is riously ill with cerebral hemorrhage at his home.

**District Society Meeting.**—The Sixth District Medical ociety held its annual meeting in Durham, April 23, under e presidency of Dr. Charles G. Nichols, Roxboro. The ciety was entertained at dinner at the Country Club. The resident of the State Society, Dr. James Parrott, Kinston, elivered an address on "The Doctor's Duty to His Fellow octor."

## OHIO

**Medical Society History Published.**—Summit County Medal Society has issued a booklet entitled "Summit County edical Society, 1842-1914," which gives a list of members ince the organization of the society with specialized information regarding each.

**New Officers.**—Montgomery County Medical Society, clinical section: chairman, Dr. Erle A. Baber; secretary, Dr. Harry H. Hatcher, both of Dayton.——Eastern Ohio Medical Society: president, Dr. George H. Irvin, Orrville; secretary, Dr. Edwin S. Lyon, Akron.

**Personal.**—Dr. Frank A. Morrison, Uhrichsville, is reported to be ill with small-pox.——Dr. Hervey W. Whitaker, Columbus, is ill at his home with erisypelas.——Dr. Will H. Woodworth, Delaware, announces that he will remove to Norfolk, Va., June 1, and that his practice will be limited to diseases of the eye.——Dr. and Mrs. John Edwin Brown and son Columbus, will sail for Europe May 26.——Dr. Ira H. Hawes, Arcanum, has been appointed colonel of the Ohio State University regiment, Columbus.

## PENNSYLVANIA

**Typhus Fever at Lancaster.**—A well-developed case of typhus fever was discovered in a local hospital by the Lancaster Board of Health, April 28.

**Allegheny County Tuberculosis Hospital.**—The State Board of Health and Charities, April 8, approved the plans for the construction of a Tuberculosis Hospital for Allegheny County, at a cost of from $50,000 to $100,000.

**Personal.**—Dr. and Mrs. James A. Irwin, Philadelphia, sailed for Europe May 7.——Dr. George R. Moffitt of Harrisburg, has been appointed bacteriologist and chemist, meat and milk inspector of the state.——Dr. Edward G. Heyer of Hazelton, has been elected superintendent of the Nanticoke Hospital to succeed Dr. August Trapold, resigned.——Dr. Clarence R. Phillips of Harrisburg has been appointed state health inspector for Dauphin County to succeed Dr. Paul A. Hartman, deceased.——Dr. Ellis M. Frost, instructor in clinical medicine and microscopic anatomy in the Pittsburgh School of Medicine, has been appointed director of the Department of Health of Pittsburgh.

### Philadelphia

**Health Director Resigns.**—Dr. Joseph F. Neff, director of the Department of Health and Charities, under the administration of Mayors Reyburn and Blankenburg since 1907, resigned because of ill health, April 29, to take effect immediately, and Dr. Richard H. Harte has been appointed his successor.

**Samuel D. Gross Prize.**—The committee having in charge the Samuel D. Gross prize, valued at $1,500, of the Philadelphia Academy of Surgery, announces essays in competition for the prize will be received until Jan. 1, 1915. The essays, which must be written by a single author in the English language, should be sent to the "Trustees of the Samuel D. Gross Prize of the Philadelphia Academy of Surgery, care of the College of Physicians, 19 S. Twenty-Second Street, Philadelphia," on or before Jan. 1, 1915. Each essay must be typewritten, distinguished by a motto, and accompanied by a sealed envelope bearing the same motto, containing the name and address of the writer.

## TEXAS

**New Officers.**—Denison Medical Society, April 2: president, Dr. David K. Jamison, Sherman; secretary, Dr. Alfred M. Kahn, Denison.——Fort Worth Doctors' Lunch Club: chairman, Dr. George D. Bond; vice-chairman, Dr. William C. Rountree, and treasurer, Dr. Henry B. Trigg.

**Quarantine Camp Established.**—Acting on the advice of Quarantine Officer Irvy L. McGlasson, Galveston, the governor has announced that the American refugees from Mexico will be retained in a detention camp for a period of six days after their arrival, and tents have been procured in sufficient number for use of the refugees.

**Quarantine Regulations Not to Be Suspended.**—Governor Colquitt of Texas has refused the request of the State Department to suspend quarantine regulations in the cases of the refugees from the war zone in Mexico landing in Texas. He has suggested that they be landed at New Orleans where there is a Federal detention hospital. Citizens of Port Aransas have protested against the disembarking from the yacht *Wakivaof* of 130 refugees direct from Tampico, from which point they were taken to Aransas Pass for quarantine instead of being taken to the state quarantine station on Harbor Island.

## GENERAL

**Joint Meeting.**—A joint meeting of the Cass County (N. Dak.) and the Clay-Becker Counties (Minn.) Medical Societies was held in Fargo, N. Dak., April 27. Dr. Frank S. Bissell, Minneapolis, read a paper on "The Roentgen-Ray in the Armamentarium of the Internist," illustrated by demonstrations and lantern slides.

**Marine Hospitals and Quarantine Stations Made Available for Sick.**—By an order issued April 25 by Surgeon General Blue, approved by the Secretary of the Treasury, United States marine hospitals and quarantine stations are made available for the sick and wounded of either the Army or the Navy on written request of the proper military or naval authority. The Public Health Service is to be reimbursed the actual cost of their care.

**Barring Out Infectious Diseases.**—Secretary of the Treasury McAdoo, on behalf of the Public Health Service, has asked Congress to appropriate and make instantly available, a fund of $100,000 to prevent the introduction and spread of epidemic diseases in the United States. This has special reference to the danger to be apprehended from the introduction of such diseases from Mexico. The fund for the current year for this purpose is exhausted.

**Officers in Mexico.**—The first military hospital was established in Vera Cruz, May 1, under charge of Maj. Allie W. Williams, M.C., U. S. Army, attached to the Third Field Hospital.——Surgeons Rudolph H. Von Ezdorf and Gregorio M. Guiteras, U.S.P.H.S., have been ordered to report to Admiral Badger at Vera Cruz for duty.——Assistant Surgeons John Tully Vaughn and Richard M. Little, M.R.C., U. S. Navy, sailed for Vera Cruz on the *Morro Castle*, April 23.

**International Congress of Neurology, Psychiatry and Psychology.**—The increasing amount of research work relative to the nervous system has warranted the Swiss Society of Neurology in calling a Congress of Neurology, Psychiatry and Psychology to be held at Berne, Sept. 7-12, 1914. An organization committee and various international committees have been appointed. Manuscripts, which may be in English, French, German or Italian, should be sent to the secretary, Dr. L. Schnyder, 31 rue Monbijou, Berne, before July 15. Registration and subscription for members is $5.

**No Restrictions on Travel on Account of Plague in Havana.**—Contrary to the impression given in some newspaper reports, no restrictions have been placed on travel to and from the ports of Cuba on account of the plague in Havana. A statement by Surgeon R. H. Creel in *Public Health Reports* May 1 is to the effect that there has been no "lifting of the quarantine" by the United States authorities as reported, which has given rise to a wrong impression as to the work of the Cuban authorities in combating the plague. The health authorities of both countries are working along the same lines, those of Cuba killing rats and fleas in the buildings in Havana, in the coast-wise shipping and in the cargo outward bound from Havana, and the Public Health Service devoting its attention to ridding ships bound for the United States ports of rats.

**California Colleges Not to Merge.**—Efforts have been made at various times to merge the medical schools of the University of California and Stanford University. Recently, it is reported, the proposal was made by Stanford University that the schools be united and controlled by a board on which the two universities would have equal representation. The proposal was considered at a conference held recently between committees appointed by the trustees of Stanford University and the regents of the University of California. It is stated, however, that the University of California considered it fundamental that the regents of the University of California have majority control of the board of managers. Since the board of trustees of Stanford University believed they were without authority to turn over the trust to any other institution in which they did not have at least equal voice the union of the medical schools was not accomplished.

**Bequests and Donations.**—The following bequests and donations have recently been announced:

New York Skin and Cancer Hospital, Society for the Relief of the Destitute Blind, Home for Destitute and Crippled Children, New York City, each $1,000, by the will of Horace Bailey Thacker.

Mt. Sinai Hospital,, Home for Aged and Infirm Hebrews, Lebanon Hospital, New York Institute for the Blind, Hospital for Deformities and Joint Diseases, and Jewish Hospital, New York City, each $2,500; Beth Israel Hospital and German Hospital, New York City, each $5,000, by the will of Emil Levy.

Manhattan Eye and Ear Infirmary, New York City, $2,125 for the support of an eye clinic, and Yale Medical School, New Haven, $1,000, by the will of Dr. Frank J. Parker.

Newton Memorial Hospital, Fredonia, N. Y., for the erection and endowment of a free tuberculous hospital for Chautauqua County, $150,000, by the will of Mrs. Elizabeth M. Newton.

Home for Destitute Crippled Children, Chicago, $1,000, by the will of Mrs. Delia L. B. Conover.

Home for Destitute Children, Chicago, $10,000; Foundlings' Home, Chicago, $10,000, by the will of Henry M. Hooker.

## FOREIGN

**Deaths in the Profession Abroad.**—E. E. J. Golay of Geneva, author of several popular works on infant and child welfare, on diphtheria persisting for a year, on painful abscesses in the bones, etc., aged 66.——F. Delius, for many years chief of the German hospital at Buenos Aires, aged 51. He succumbed to the effect of chronic injury from Roentgen-ray work, which he was the first to introduce into Argentina.——L. Udranszky, professor of physiologic chemistry at Budapest and author of numerous works on this branch of science, especially on furfurol reactions, occurrence and elimination of diamins, etc.

**Diphtheria in Cuba.**—Some recent statistics show that in the last eleven years, of the 320,039 deaths in Cuba, diphtheria was responsible for 1,850, but all but 19.78 per cent., were in whites. In the general mortality, the whites are represented by 65.7 per cent. and the blacks by 34.3 per cent. By the thousand living inhabitants, the mortality from diphtheria among the whites was 1.06 and 1.02, males and females; among the blacks it was only 0.56 and 0.62 respectively. J. LeRoy presents these figures in the *Revista de Med. y Cir.* of Havana and queries what can be the cause of this superior resisting power on the part of the blacks.

## CANADA

**Improvement at Queens.**—The departments of physics, chemistry, physiology and bacteriology and hygiene are to be strengthened at Queen's University, Kingston, owing to the adoption of the five-year course.

**School Medical Staff Changes.**—Dr. William E. Struthers, chief medical inspector of Toronto Board of Registration, has recommended that Dr. E. R. Langrill be placed on the regular staff, and that the resignation of Dr. R. M. Burgess be accepted.

**Foreign Surgeons in Montreal.**—About forty of the leading surgeons of Europe visited Montreal before sailing for home from Boston. While in Montreal they were in charge of Drs. George E. Armstrong, Francis J. Shepherd and J. Alexander Hutchison. They were entertained at luncheon at McGill, Principal Peterson doing the honors, and also visited the Montreal General and Royal Victoria hospitals.

**Personal.**—Dr. Harry C. Burgess, Montreal, has returned from Europe.——Owing to the retirement of Dr. Richard W. Garrett, Dr. Gordon W. Mylks has been appointed professor of pediatrics and gynecology at Queen's University, Kingston, Ont.——Dr. Archibald R. B. Williamson has been appointed professor of obstetrics at Queen's University; Dr. John T. Fotheringham, Toronto, assistant professor of surgery; Dr. E. D. C. MacCallum, lecturer in clinical medicine; and J. M. Farrell, B.A., lecturer in jurisprudence.

**Quackery in Ontario.**—The province of Ontario seems to be the stamping ground for quackery of all sorts and variety. This state of affairs has been brought about owing to a member of the judiciary rendering an opinion or judgment that practicing medicine meant the giving of drugs. Apparently, however, the profession is getting tired of this state of affairs, and the Council is contemplating a request to the legislature at its next session to amend the Ontario Medical Act. It is nearing a year since the prime minister announced at the opening of the Toronto General Hospital that the government had in contemplation a commission to inquire into medical education and practice in all its bearings. Probably his late severe illness has occasioned the delay in appointing that commission.

**Rabies and Typhoid in British Columbia.**—A circular letter sent out by the Provincial Board of Health at Victoria calls attention to the fact that rabies has made its appearance among dogs in one of the districts of the province, and that the disease has also occurred in Washington and Oregon. The public is warned of other outbreaks and gives notice that the department is prepared to send the complete treatment for hydrophobia to persons applying, which is to be administered by the local practitioner. Another circular of the Provincial Board gives information as to the occurrence of typhoid fever and the great waste of time and money of the people on this wholly preventable disease, and gives notice that the typhoid prophylactic is available for distribution free of charge. The people are urged to avail themselves of this preventive by being vaccinated. The prophylactic will be sent to any physician or to qualified nurses who apply for it.

**Hospital News.**—A new $20,000 home for nurses was opened at Woodstock, Ontario, on April 28.——From statistics prepared by the Montreal General Hospital, considerable shortening of the average illness of patients in recent years has been experienced. In 1880 inmates were in bed on the average 26.14 days. There has been a progressive decrease, until the average last year was only 18.4 days. During the same period the average cost of indoor patients has doubled, being now at the rate of $2.15 per patient per day.——The Loyola Convalescent Home was opened in Montreal last week. This organization founded in 1899 as a purely social and literary body has developed into one doing a great amount of useful work in the community of Montreal. This convalescent home is for patients not well enough to resume their former lives but able to leave the hospital; and they will be cared for at no advance on the cost of hospital maintenance. Dr. James J. Guerin is chairman of the medical board.

## CANAL ZONE

**Personal.**—Senior Surgeon Joseph Hill White, U.S.P.H.S., at present on leave of absence to enable him to do research work regarding the hookworm in Central America, arrived at Panama, May 1.

**To Rebuild Ancon Hospital.**—A committee consisting of Capt. R. E. Wood, chief quartermaster, chairman; Dr. A. B. Herrick, acting superintendent of Ancon Hospital, and Mr. Samuel Hitt. canal architect, has been appointed to submit recommendations regarding the most practicable plan for reconstructing Ancon Hospital on a permanent basis. In appointing the committee, the governor submitted for its consideration a letter from the chief health officer, in which the latter set forth that many of the buildings in present use are in bad condition, needing constant and expensive repairs, and offered the following suggestions: That a general plan should be drawn up for constructing the entire hospital in concrete buildings, with tile roofs and floors; that the pavilion system, on which the present hospital was laid out, is desirable, but for purposes of economy in construction and administration, the ward buildings should be of two stories; that an effort should be made to concentrate all the administrative features of the hospital in one building, and to place the commissary, and medical and quartermaster's storerooms together; that the Tivoli dispensary should be consolidated with the out-patient department of the hospital; that the two existing steam plants in the hospital should be consolidated, if practicable; and that space for 800 beds should be provided, exclusive of those for the insane, with a minimum allowance of 100 square feet of floor space for each bed.

## LONDON LETTER

London, April 24, 1914.

### The British Medical Association and Medical Aid Institutes

"Medical aid institutes" constitute a form of contract practice which has always incurred the hostility of the profession. They are established by combinations of working men to provide medical attendance for themselves and their families, and are financed by small regular contributions either collected from the members or deducted at the works from their wages. As a rule they employ whole-time physicians who are paid a salary and whose appointment and control are entirely in the hands of a purely lay committee. These institutes are therefore usually staffed by the failures of the profession. When the insurance act was under consideration, the British Medical Association succeeded in obtaining restrictions to the further development of these institutes and a proviso that money paid to them for medical benefit should be handed over entirely to the physicians.

A committee of the British Medical Association has recently had the subject under consideration and passed a resolution that in order to check the extension of these institutes and to combat those established, the association should endeavor to enlist the support of the staffs of the voluntary hospitals and ask them not only to refuse professional recognition to the medical officers of the institute, but also to refuse to treat patients sent by them to hospitals, except in cases of grave emergency.

This attitude of the association has aroused hostility in the newspapers which support the government. They refer to a memorial addressed to the General Medical Council by the Friendly Societies Alliance as far back as 1892, in which the fact is pointed out that the ordinary club system left much to be desired, as it usually occurred that attendance on a club patient was a secondary consideration with the club doctor. Private patients monopolized his care and attention and he naturally looked more closely after the patients who might pay fees than after those whose money was certain to be paid whether the members were attended to or not. Moreover, a cheese-paring policy of supplying the sick with medicine of inferior quality and in improperly small quantities was adopted. Although the insurance act has removed some of the worst features of contract practice, the frequent complaints of overcrowded surgeries and unsatisfactory treatment are held to justify the continuance of these institutes. It is characterized as a monstrous abuse of trust by the staffs of hospitals which are maintained by charity to refuse to treat patients coming from medical institutes.

### Bill to Prevent the Vivisection of Dogs

By a majority of 42 in a house of 202 members, the second reading of a bill to prevent experiments on dogs has been carried in the House of Commons. The bill was introduced by Sir F. Banbury, member for the city of London, who said that scientists could experiment on any animal they liked but the dog. This animal had a special claim for exemption on account of its long association with man, whose best friend he had been. Experiments on the dog were not necessary. The rejection of the bill was moved by Mr. Rollinson, member for Cambridge University, who pointed out that the present power of vivisection in England was restricted by the most careful safeguards. If any further were required, he said, let them be brought forward; but it was not necessary to pass a bill to obtain that object. We had gone far beyond any other country in strictly scientific research. The recent Royal Commission on Vivisection found that for some experiments no other animal was so suitable as a dog or cat. For the government a compromise was proposed—an additional safeguard—that no one should experiment on dogs unless he proved that no other animal was available for the purpose. A memorial against the bill signed by most of the eminent physicians, surgeons and research workers in the country has been presented to the Home Secretary. It is pointed out that the bill would inflict severe injury not only on medicine and surgery, but also on the study of diseases of animals.

### Compulsory Notification of Ophthalmia Neonatorum

The president of the Local Government Board has issued an order making ophthalmia neonatorum notifiable throughout the country. According to report of the committee of the British Medical Association, the disease is the cause of at least one-third of the blindness of the inmates below the age of 16 in British schools for the blind.

## PARIS LETTER

Paris, April 17, 1914.

### Elections and the Public Health Service

The Association ouvrière pour l'hygiène et la sécurité des travailleurs has just posted an appeal to the voters in each electoral district, excerpts from which may be of interest: "France is occupied too much with that side of affairs which concerns the Bourse and the course of shifting values; and too little interested in the side which has to do with life and the course of human values. Witness the last sanitary statistics published by the Minister of the Interior, which state that for every 10,000 persons, France has 178 deaths a year, Germany 140 and England 135. If this coefficient were with us as it is with Germany or England, from 149,000 to 169,000 fewer persons would die in France each year. And yet France is an admirable country, with a rich soil and a temperate climate. The populace is no more destitute or ignorant than in any other country. The medical body is also educated. What, then, is the cause of the evil? In France the health services are rudimentary; in the central administration they are ridiculously scattered in a dozen directions. No one member of the governing body is responsible for the public health, and no one of them cares! The law of 1902 regarding public health is, in almost every department, a dead letter. In the communes the mayors dare not apply the sanitary regulations, and the prefects dare not ask help of the mayors. This is a question of economizing in human lives, to the extent of more than 150,000 a year. . . . Do you think that from any point of view—economic, sociologic, national—the question is negligible? Or do you think—with us—that instead of occupying the last place in the consideration of public officials this should occupy the first? If you do, make Parliament study the question. Insist that your candidates, of whatever political party, shall promise to urge on the Chamber of Deputies the necessity of serious organization which will further public service along the lines of hygiene in the commune, the department and the state, and above all things to wage methodical war against those twin scourges which are dishonoring and ruining France—tuberculosis and alcoholism. It is a question of life or death for the nation!"

### Action of Antirennin on the Digestibility of Milk

At the April 14 meeting of the Académie de médecine, Dr. Louis Gaucher of Montpellier demonstrated that one of the principal causes of intolerance of cow's milk lay in the work done by the stomach in breaking up the curds of casein; human milk or donkey's milk, less rich in casein, is more easily tolerated. This is a factor which must be taken into account in the etiology of gastro-enteritis in babies. This objection to cow's milk may be removed by adding to it a small quantity of antirennin, a ferment which is found in the serum of the sheep or horse. Indeed, antirennin breaks up the coagulated cow's milk into light flakes, making it similar in quality to human milk. In consequence, this method makes it possible to avoid fatigue of the stomach and to prevent gastro-enteritis in children who receive artificial nourishment. This method seems to be indicated also in the case of adults who cannot tolerate a milk diet, as well as in the case of dyspeptics and victims of gastric ulcer, whose stomachs are given rest.

### Has Mortality from Tuberculosis Diminished in Paris?

If the figures furnished by official documents be consulted, it will be seen that, for the city of Paris, tuberculosis has been noticeably on the decline for a number of years. In 1875, of each hundred thousand inhabitants of Paris, 410 died of pulmonary tuberculosis; in 1911, only 343. These are, as a rule, the figures cited when the diminution of mortality from tuberculosis is discussed: they are drawn from the statistics of the population, and do not recognize any cause but pulmonary tuberculosis. As it has been said, however, it is a mistake to say that the mortality from tuberculosis has dropped from 410 to 343 for each hundred thousand inhabitants, because the thousands of deaths caused by the localization of tuberculosis in organs other than the chest are forgotten. Furthermore, mortality from tuberculosis in the suburbs of Paris, which are growing to immense proportions, is not mentioned. According to a table made recently by Dr. A. Fillassier of the statistical bureau of Paris, which concerns the morbidity of the communes of the Department of the Seine, it is seen that the number of deaths due to tuberculosis has grown steadily from 1896 to 1911. This reinforcement from the suburbs makes up in a great measure for the falling off in the tuberculosis death-rate of Paris proper.

This undiminished mortality from tuberculosis has still another cause. Since 1880, in spite of the growth of the population of Paris, the general mortality has been lessened by 10,000. The health of Paris has therefore most fortunately improved: certain diseases are on the decline. But for each hundred deaths due to all causes, the proportion of those due to tuberculosis has steadily increased, having risen from 20 to 25 per cent.

### The Next Meeting of Practicing Physicians

The program for this meeting, which will be held in Paris, May 27-29, will be given over to the study of the part which the medical body and the medical syndicates should play in the organization of social hygiene and the sanitary defense in France.

## BERLIN LETTER

Berlin, April 23, 1914.

### Further Decrease in Deaths from Tuberculosis

According to the statement of the National Prussian Statistical Bureau, there was a further decrease in deaths from tuberculosis during the year 1913. In Prussia, during the year 1912, there were 59,911 deaths against 56,583 in 1913, showing a decrease of 3,328 deaths in 1913. The average death-rate per ten thousand, which in 1912 was 14.85, amounted to only 13.59 during the year 1913. Twenty years ago, the figures were twice as large.

### Institute for Crippled Children in Munich

March 26 the new building of the National Institute for Crippled Children and the orthopedic clinic connected with this institute, the first national clinic of its kind in Germany, were formally opened in the presence of the king and queen of Bavaria. The king gave the institute a fund of $2,500 (10,000 marks) for free beds. The National Institute consists of a large central building and two side wings. Through the entrance one passes into a main hall, from which is reached the large dining-hall. Spacious corridors each side lead to the schoolrooms for boys and girls, the workrooms and workshops, such as the book-bindery, the tailor-shop and the shoe-shop. The gymnasium is connected with the latter by a corridor. On the second story of the main building there are offices, examination- and operating-rooms for the dentists and house physicians and a room for the drawing classes; in the wings are recreation-rooms, playrooms, music-rooms and bedrooms. The separation of the sexes is carried out strictly. The third story contains besides the apartments for the director, dormitories, rooms for the laundry and the sick-rooms. Each dormitory is provided with an inspection-room, a wash-room and wardrobe. In the upper story, to be used for the enlargement of the institute, there will be placed at first only some reserve rooms, a sick-room and a room for former pupils. Comprehensive provision for the boilers and kitchen, besides the baths and the rooms for the servants, are made in the basement.

A roomy passageway in the first story leads from the National Institute to the orthopedic clinic. Here also the kitchen with its accessory rooms and the rooms for servants, as well as the workshops for the preparation of orthopedic apparatus, are placed in the lower story. From the arched entrance hall, the office and waiting-rooms as well as the numerous consultation- and examination-rooms are accessible. The operating-rooms, the special Roentgen-ray rooms and a patients' elevator, as well as the orthopedic gymnasium, lie in the transverse building adjoining on the south. The first and second stories of the clinic are chiefly occupied by rooms for patients in addition to a living-room for the assistant, an operating-room for septic cases, a dining-room for the nurses and two separate wards with five beds.

All the patients' rooms are provided with covered porches which face south or southeast. The number of beds for patients amounts at the outset to seventy, but they can be easily increased at any time by putting them closer together. The living-rooms for the nurses are in the upper story of the south building. From the connecting passage between the National Institute and the clinic there are entrances to the Roman Catholic and Protestant chapels.

The isolation and laundry building serves in common for the National Institute and the clinic. It contains in the basement scientific laboratories for animal experiments, disinfection apparatus and a room for generation of steam and hot water as well as an apparatus for softening the very hard water. On the ground floor and in the second story there are four isolation-rooms as well as a special steam laundry for each of the two institutions. The heating of the whole building is carried on in a common heating plant.

### The Falling Birth-Rate in Bavaria

The claim frequently made with special emphasis by the press and members of parliament of the central party that the Roman Catholic population participate in the lamentable reduction in the birth-rate to a much less degree than the Protestants, finds a timely and interesting illustration in the official statistics for Bavaria for 1913, just published. In this connection, it must be remarked that Bavaria is 70 per cent. Roman Catholic and 28 per cent. Protestant, while Prussia is 36 per cent. Catholic and 62 per cent. Protestant, like the empire in general. Now there began in Bavaria as well as in Prussia, in 1887, a reduction in the birth-rate which has been especially marked since the year 1902. In Bavaria in the five-year period 1901-1905, there were 37 births as an annual average for 1,000 inhabitants; from 1906-1910, 34.1; 1911, 31.1, and in 1912, 30.7. In Prussia, according to the statistical year-book, there was from 1901-1905 an average annual birth-rate of 36; 1906 to 1910, 33.3, and 1911, 30.2. The number for 1912 is not contained in the year-book. The difference is not so great, amounting to only 3 per cent., and the curves run practically parallel. Whether the religious sect explains the slightly greater number of births in Bavaria seems very questionable when it is remembered that the Bavarian statistical bureau makes a further statement with regard to the proportion of births in the country. For every single district and for every city the average yearly birth-rate per thousand women of child-bearing age (from 16 to 50 years) is estimated. Very considerable regional differences are apparent. As in other countries, most cities are distinguished by their low fertility. Evidently, the birth-rate depends much more on the economic and social condition of the population than on its sectarian complexion.

The upgrowth, which is the term signifying the number of children who have reached the age of earning capacity, is the greatest in those districts in which the fertility stands especially high. The infant mortality which, in many parts of Bavaria, has reached a height which is observed nowhere else in the German Empire—as high as a third of the children born living die in the first year of life—causes such a destruction of new-born children that often districts with a much smaller fertility by rational care in bringing up their children raise many more than districts with a more marked fertility with poorer care. On the whole, a considerable reduction of infant mortality in Bavaria has been noticed during the last two years. At any rate, the death-rate of the entire population has sunk to a marked degree. In 1900 there were 26.6 deaths per thousand inhabitants; in 1912, only 18.5. All classes, particularly those in the productive years of life, have participated in this increase in the average duration of life. In this time of a falling birth-rate, this favorable preservation of vitality deserves especial attentio

## Marriages

Donald Andrew Fraser, M.D., San Francisco, to Miss Beatrice N. Lux of San Jose, Cal., at San Francisco, April 22.

Daniel Philip MacGuire, M.D., West New Brighton, S. I., N. Y., to Miss Beatrice Butler of New York City, April 22.

Alexander Sands Rochester, M.D., Chicago, to Miss Harriet Morris Carnahan of Columbus, Ohio, April 18.

Harry Langdon Rockwood, M.D., Warrensville, Ohio, to Miss Lou Catherine May of Brilliant, Ohio, April 22.

Alfred Melchior Letzerich, M.D., Harlingen, Tex., to Miss Myrtle Laas of Yorktown, Tex., April 23.

David A. Campbell, M.D., Tampa, Fla., to Miss Florence Springer of Indianapolis, at Tampa, April 23.

Frederick John Cullen, M.D., to Miss Ida Gibson, both of Tacoma, Wash., in Seattle, Wash., April 13.

Francis Eugene Murphy, M.D., Aitkin, Minn., to Miss Romelle Comrie of Winona, Minn., April 19.

Edgar Irving Leavitt, M.D., San Francisco, Cal., to Miss Laura Arnot of Placerville, Cal., April 19.

Metullus Rowan Barclay, M.D., to Miss Elsie Genevieve Kohlasch, both of Chicago, recently.

Frank Burton Von Wormer, M.D., Alton, Ill., to Miss Stella Cobb of River Forest, Ill., April 22.

Otho Lee Monroe, M.D., New York, N. Y., to Miss Anna Marshall of McLeansboro, Ill., April 22.

Lloyd Hunter Mills, M.D., to Miss Mary Richardson, both of Los Angeles, Cal., recently.

Gordon A. Lillie, M.D., Batson, Tex., to Miss Bess Vandervoort of Pawnee, Okla., April 15.

Elvin William Keith, M.D., to Miss Helen Dougherty, both of Pottsville, Pa., April 17.

Francis W. Sinkler, M.D., to Miss Mildred Scott Pearce, both of Philadelphia, April 14.

Ralph S. Jiroch, M.D., to Miss Clara Davis, both of Saginaw, Mich., April 18.

## Deaths

**Daniel Mitchell Appel, M.D.** Colonel Medical Corps, U. S. Army; a Fellow of the American Medical Association; was found dead at his home in Honolulu, Hawaii, April 23, from organic heart disease, aged 59.

He was graduated from Jefferson Medical College in 1875, and a year later entered the Army as assistant surgeon. At the outbreak of the Spanish-American War he was made chief surgeon of the First Division, Seventh Army Corps, and later was on duty at Chickamauga Park, Ga., and Fortress Monroe, Va. In 1899 he was transferred to Savannah, Ga., and three years later was placed in command of the Army General Hospital, Fort Bayard, N. Mex. A year later he was ordered to the Philippine Islands, where he served as surgeon at Camp Jossman, and later as medical-supply officer at Manila. On his return to the United States in 1906, he was placed in charge of the medical-supply depot at San Francisco. In 1908 he was promoted to colonel, medical corps, and three years later was made chief surgeon, department of the gulf. Early in 1913 he came to Chicago as chief surgeon of the central division, and a few months later was transferred to a similar position in the department of Hawaii, with headquarters at Honolulu.

**Richard Alexander Urquhart, M.D.** University of Virginia, Charlottesville, 1894; a Fellow of the American Medical Association; assistant pediatrician to Johns Hopkins Hospital, Baltimore; attending physician to the Union Protestant Infirmary; Church Home and Infirmary; Baltimore Orphan Asylum, James Kernan Hospital and Industrial Home for Crippled Children; one of the medical inspectors of public schools of Baltimore; instructor in pediatrics in Johns Hopkins Medical School; died at his home in Baltimore, April 22, from heart disease, aged 42.

**Adolph Abraham Margolies, M.D.** University of Koenigsberg, Germany, 1879; Eclectic Medical College of the City of New York, 1883; of Brooklyn; died in the German Hospital, New York City, April 20, from carcinoma of the stomach, aged 66.

**Samuel Otway Lewis Potter, M.D.** Homeopathic Medical College of Missouri, St. Louis, 1878; Jefferson Medical College, 1882; a veteran of the Civil War; acting assistant surgeon, U. S. Army, in 1882-83; major and brigade surgeon, U. S. V., from 1898 to 1902, with service in the Philippine Islands; professor of practice of medicine in Cooper Medical College, San Francisco, from 1886 to 1893; formerly president of the College of Physicians and Surgeons, San Francisco; author of a handbook of materia medica, pharmacy and therapeutics which has gone through many editions, and of a number of other books and articles on therapeutics and engineering; died in St. Luke's Hospital, San Francisco, April 21, aged 67.

**Charles Pickering Putnam, M.D.** Harvard Medical School, 1869; a Fellow of the American Medical Association and American Pediatric Society of which he was president in 1908; medical director of the Massachusetts Infant Asylum; at one time chairman of the board of children's institutions department of the city of Boston; president of the Boston Associated Charities; eminent as a specialist on diseases of children; from 1875 to 1879 lecturer and instructor on diseases of children in Harvard Medical School; one of the organizers of the Boston Association for the Relief and Control of Tuberculosis; died at his home in Boston, April 22, aged 69.

**Charles Byron Nichols, M.D.** Dartmouth Medical School, Hanover, N. H., 1872; a Fellow of the American Medical Association; formerly president of the Angelus Hospital Association, Los Angeles; professor of surgery and president of the College of Physicians and Surgeons, Los Angeles; president of the Los Angeles Academy of Medicine, and Clinical and Pathological Society of Los Angeles; a veteran of the Civil War; and a surgeon of volunteers in the Spanish-American War, with service in the Philippine Islands for three years; died at his home in Los Angeles, April 16, aged 66.

**Oliver L. Halbert, M.D.** University of Louisville, Ky., 1876; a member of the State Medical Association of Tex.; once president of the McLennan County Medical Society; formerly president of the board of directors of the Y. M. C. A. of Waco; for many years a trustee of Baylor University; died at his home in Waco, April 22, aged 64. At a special meeting of the McLennan County Medical Society, resolutions were adopted relative to the death of Dr. Halbert.

**William F. Burnett, M.D.** Louisville Medical College, 1902; a Fellow of the American Medical Association; formerly surgeon to the Eureka (Nev.) Hospital and Richmond-Eureka Mining Company; and later a practitioner of Santa Rosa, Cal.; died at the Hotel Dieu, El Paso, Tex., February 27, as the result of injuries to the fourth cervical vertebra, caused by a fall four days before at Bowie, Ariz., aged 49.

**William Walker Brackett, M.D.** Jefferson Medical College, 1896; a Fellow of the American Medical Association; health officer of New Britain from 1906 to 1909; medical inspector of schools of New Britain since 1911; attending surgeon to New Britain General Hospital; died at his home, April 21, from septicemia due to an accidental infection, aged 42.

**Frank Kelly Roarke, M.D.** Albany (N. Y.) Medical College, 1891; a Fellow of the American Medical Association, and a specialist on diseases of the nose and throat; laryngologist to the Samaritan Hospital and consulting laryngologist to the Maternity Hospital of Troy, N. Y.; died at his home in that city, April 19, aged 44.

**Morris Stroud French, M.D.** Jefferson Medical College, 1876; formerly superintendent of the Allegheny County Insane Hospital, Woodville, Pa.; died in his room in Philadelphia, April 26, from the effects of a gunshot wound of the head, believed to have been self-inflicted with suicidal intent, aged 65.

**Francis Alvin Weir, M.D.** Rush Medical College, 1879; a Fellow of the American Medical Association; for many years a practitioner of Jesup, Ia., but for eighteen years a resident of Pasadena; died at his home in that city, April 16, from pernicious anemia, aged 75.

**Orlando P. Sala, M.D.** College of Physicians and Surgeons, Keokuk, Ia., 1868; for forty-five years a practitioner of Bloomington, Wis.; a veteran of the Civil War; died in Mercy Hospital, Davenport, Ia., April 24, aged 68.

**A. M. Covert, M.D.** Starling Medical College, Columbus, Ohio, 1879; for many years a practitioner of Antioch, Ohio; died at his home in South Zanesville, Ohio, April 19, from pernicious anemia, aged 61.

**Hugh Watt, M.D.** Victoria College, Cobourg, Ont., 1880; University of Toronto, Ont., 1890; for several years editor and proprietor of the Meaford *Monitor;* and later in charge of an Indian Reservation at Fort Steele, B. C.; died at his home in Elko, B. C., March 23.

**Edward W. Blake, M.D.** Missouri Medical College, St. Louis, 1897; a member of the Oklahoma State Medical Association; a specialist in diseases of the eye, ear nose and throat of Tahlequah, Okla.; died at his home, March 13, from heart disease, aged 44.

**Rebecca Rogers George, M.D.** University of Michigan Homeopathic College, Ann Arbor, 1891; for several years lecturer on special physiology and hygiene at the Indiana State University, Bloomington; died at her home in Indianapolis, April 17, aged 51.

**Royal Lewis Cleaves, M.D.** Harvard Medical School, 1869; a Fellow of the American Medical Association; for forty-four years a practitioner of Cherokee, Ia.; a veteran of the Civil War; died at his home in Cherokee, April 16, from heart disease, aged 69.

**Joseph Taylor Shepler, M.D.** Bellevue Hospital Medical College, 1874; for two years coroner of Fayette County, Pa., and later local surgeon for the Pennsylvania System; died at his home in Uniontown, Pa., April 12, from cerebral hemorrhage, aged 67.

**Blake A. D. Harwood** (license, New Hampshire, 1897), of Exeter, N. H.; a member of the New Hampshire Medical Society; surgeon in the British service during the Boer War; died at his home in Exeter, N. H., April 12, from heart disease, aged 61.

**Warren R. Woodward, M.D.** Medical College of Ohio, Cincinnati, 1866; a member of the Ohio State Medical Association and one of the best-known practitioners of Hamilton County, Ohio; died at his home in South Milford, April 16, aged 70.

**Eugene C. McMeel, M.D.** College of Physicians and Surgeons, Keokuk, Ia., 1880; a member of the Iowa State Medical Society; recently appointed postmaster of Delmar, Ia.; died at his home in that place, April 22, from pneumonia, aged 55.

**William Triplett Harris, M.D.** Medical College of Virginia, Richmond, 1907; a member of the Medical Society of Virginia; at one time a member of the staff of the Memorial Hospital, Richmond; died at his home in Richmond recently, aged 39.

**Peter Beaugrand, M.D.** Medical College of Ohio, Cincinnati, 1845; surgeon of the One Hundred and Sixty-Ninth Ohio Volunteer Infantry during the Civil War; died at his home in Fremont, Ohio, April 12, from senile debility, aged 99.

**Mark Andrews, M.D.** New Orleans School of Medicine, 1858; for forty years a practitioner of Waterproof, La.; surgeon in the confederate service during the Civil War; died at his home in San Antonio, Tex., about April 21, aged 83.

**Charles Joseph Spratt, M.D.** Bellevue Hospital Medical College, 1869; a member of the Minnesota State Medical Association; an eye and ear specialist of Minneapolis; died in Asbury Hospital in that city, April 12, aged 65.

**Julius Caesar Lauer, M.D.** University of Berlin, Germany, 1893; aged 55; died at his home in Long Island City, N. Y., April 20, from septicemia, believed to have been the result of a bite of a child suffering with diphtheria.

**Pliny Penn Lester, M.D.** Rush Medical College, 1903; of Walsenburg, Colo.; aged 41; while dressing the wounds of a militiaman shot during the strike at the Forbes Camp near Walsenburg, was shot and killed.

**Edmond Lalonde, M.D.** Laval University, Montreal, Que., 1899; a Fellow of the American Medical Association; aged 38; was found dead in his home in St. Paul, April 22, from accidental gas asphyxiation.

**Sebastian A. Allgaier, M.D.** Medical College of Ohio, Cincinnati, 1900; died in his apartment in Cincinnati, April 19, from the effects of poison, self-administered, it is believed with suicidal intent, aged 39.

**James W. Murphy, M.D.** Ohio Medical University, Columbus, 1895; a member of the Ohio State Medical Association; died at his home in Eagle Mills, Ohio, April 16, from tuberculosis, aged 43.

**Thomas S. White, M.D.** American Medical College, eclectic, St. Louis, 1879; a veteran of the Civil War, died at his home in Kansas City, April 20, from nephritis, aged 82.

**Ferdinand O. Kauffmann, M.D.** Missouri Medical College, St. Louis, 1874; at one time physician in charge of the Quarantine Hospital, St. Louis; died at his home in that city, April 14, from heart disease, aged 67.

**Charles Hunt Porter, M.D.** College of Physicians and Surgeons, New York City, 1908; a Fellow of the American Medical Association; formerly a clergyman; died at his home in Taunton, Mass., April 17, aged 43.

**Everett B. Utley, M.D.** College of Physicians and Surgeons, Baltimore, 1883; a member of the South Carolina Medical Association; died at his home in Marion, S. C., recently, from pneumonia, aged 53.

**William Edward Scollard, M.D.** Rush Medical College, 1882; a Fellow of the American Medical Association; who was adjudged insane in November last; died at his home in Milwaukee, Wis., April 19, aged 62.

**Morris Wolf, M.D.** Eclectic Medical College of the City of New York, 1893; *formerly health officer of Yonkers, N. Y.;* died in St. Joseph's Hospital in that city, April 18, from disease of the intestine, aged 44.

**William H. Seip, M.D.** Jefferson Medical College, 1859; a member of the Medical Society of the State of Pennsylvania; died at his home in Bath, Pa., April 11, from cerebral hemorrhage, aged 76.

**Charles Higgs Franklin, M.D.** Tulane University, New Orleans, 1866; a member of the Medical Association of the State of Alabama; died at his home in Union Springs, Ala., March 19, aged 75.

**John Aloysius Healy, M.D.** Tufts College Medical School, Boston, Mass., 1896; a member of the Minnesota State Medical Association; died at his home in Spicer, Minn., April 13, aged 43.

**William Bike Stiver, M.D.** Rush Medical College, 1878; a member of the Illinois State Medical Society; of Freeport, Ill.; died in that city, April 18, from cerebral hemorrhage, aged 63.

**Nelson Obetz, M.D.** Starling Medical College, Columbus, Ohio, 1879; for thirty-four years a practitioner of Columbus; died at his home in that city, April 13, from arteriosclerosis, aged 61.

**Vincent A. Baker, M.D.** Syracuse (N. Y.) Medical College, 1854; Eclectic Medical College of the City of New York, 1873; died at his home in Adrian, Mich, March 20, aged 82.

**Harrie B. Howell, M.D.** University of Buffalo, N. Y., 1890; a member of the Medical Society of the State of New York; died at his home in Rochester, N.Y., February 6, aged 50.

**Earl Weaks, M.D.** University of Louisville, Ky., 1909; formerly of Gallup and Silver City, N. Mex.; died at his home in Paducah, Ky., March 20, aged 30.

**Carl Wirth, M.D.** Northwestern University Medical School, Chicago, 1873; died at his home in St. Paul, Minn., April 17, from angina pectoris, aged 70.

**Charles L. Randell, M.D.** College of Physicians and Surgeons, Baltimore, 1889; of Portland, Me.; died suddenly in Tampa, Fla., March 22, aged 55.

**Julia Ann Marshall, M.D.** Boston University School of Medicine, 1877; of Norfolk Downs, Mass.; died in Boston, March 26, aged 72.

**Charles M. Mahaffey, M.D.** Western Reserve University, Cleveland, 1877; died at his home in Mount Vernon, Ohio, April 10, aged 59.

**Henry W. Shaffer, M.D.** Cleveland University of Medicine and Surgery, 1897; died at his home in Tedrow, Ohio, April 7, aged 63.

**Haschall P. Miller, M.D.** Hahnemann Medical College, Chicago, 1887; died at his home in Norwalk, Wis., February 6, aged 74.

**Miles W. Palmer, M.D.** New York University, New York City, 1847; died at his home in New York City, April 10, aged 92.

**James D. Foster** (license, Kentucky, forty-nine years practice, 1893), died at his home in London, Ky., March 16, aged 92.

**Charles W. Carrier, M.D.** University of Buffalo, N. Y., 1862; died at his home in Troy, Pa., March 24, aged 73.

**Herman Fritsch, M.D.** Jefferson Medical College, 1870; died at his home in Philadelphia, April 16.

**John Warren Walker, M.D.** Rush Medical College, 1884. died at his home in Chicago, April 16.

# *The Propaganda for Reform*

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

## THE OKOLA LABORATORY

### A Mail-Order Treatment for Weak Eyes Declared Fraudulent by the Postal Authorities

On Feb. 16, 1914, Postmaster-General Burleson, on the recommendation of Judge W. H. Lamar, assistant attorney-general, issued a fraud order against the Okola Laboratory (Inc.), Rochester, N. Y., on the grounds that the concern was "engaged in conducting a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises."

The Okola Laboratory commenced operations in 1911 and was incorporated in New York, March 25, 1912, by the following individuals:

Charles S. Clark
Katherine A. McCormick
Edwin J. McNamara

Clark is said to have been the chief promoter, and to have had associated with him in carrying on this fraud the following:

Thomas F. Adkin, Rochester, N. Y.
Dr. John L. Corish, New York, N. Y.
Dr. John S. Read, Rochester, N. Y.
Charles H. Phillips, London, England.

Many of The Journal readers will recognize the name of Adkin as the man who has been connected with various fraudulent concerns, some of which have been put out of business by the federal authorities, others have gone out of existence, while some are still being operated. Thomas F. Adkin and E. Virgil Neal (alias X. LaMotte Sage) have for many years been engaged in the business of swindling the public through the instrumentality of the United States mails. They will probably continue to do so until the laws have become sufficiently flexible and public opinion has become sufficiently aroused to warrant some more drastic punishment than the mere issuance of a post-office fraud order.

The general scheme of the Okola Laboratory was to advertise that Dr. John L. Corish, "an able New York physician, and "an eminent medical man," had discovered a marvelous treatment for affections of the eyes by which those who were wearing glasses, or who should have been wearing glasses, could do without them. The treatment was claimed to have originated in Germany (a favorite fiction in many lines of medical fraud) and was represented to cure eye-strain, inflammation of the retina, cataract, diseases of the optic nerve, and many other conditions equally serious.

The so-called Okola Method consisted of three parts: "Okola," Okolizer" and "Okolator." "Okola" was the name of some tablets that were sent to those who purchased the "treatment." These were analyzed by the government chemists and were found to consist, essentially, of:

Baking soda
Boric acid

The directions were to dissolve the tablets in water and apply the solution to the eye by means of an eye-cup. The "Okolator" was a metal inhaler containing cotton moistened with a volatile liquid found by the government chemists to have the following ingredients:

Oil of mustard
Carbolic acid
Iodin
Menthol
Camphor
Oil of eucalyptus
Oil of sassafras
Tincture of benzoin
Alcohol
Petroleum oil

The "Okolator" was to be applied to the nose and the fumes from this odoriferous tube inhaled. The 'Okolizers" were simply printed cards on which directions were given for rubbing the eyes, etc. The element of "mental suggestion" was not lacking, as some of the reading matter on these cards indicates:

> "I am using Okola and the Okolator, also following the simple rules of the Okolizers, as I am convinced that there will be a notable and lasting benefit to my eyes by faithful adherence to the Okola Method for six months."

The absurdity and fraudulence of selling a simple eyewash and an evil-smelling inhalant mixture for the cure of cataract, retinitis, glaucoma, astigmatism, etc., is evident. But this fraud was carried on for nearly two years and is said to have swindled the public out of $100,000 a year.

The Okola Laboratory advertisements featured a "free book" which was declared to have been written by Dr. John L. Corish. When the fraud was investigated by the postal authorities, it was found that the book was not written by Corish, that Corish had had practically no experience in treating diseases of the eye, and was, in fact, at the time experimenting with a "cure" for baldness. Corish's name appears in connection with the Woods fraudulent cure for alcoholism, exposed in The Journal some time ago, he having "indorsed" this swindle. Needless to say, Corish is not an "eminent New York physician"—he is but a comparatively obscure member of the *genus* Quack. In this connection it should be noted that Dr. John S. Read, the "director" of the Okola Laboratory, was one of the Rochester physicians who gave sworn testimony for the benefit of that hoary fraud, "Duffy's Malt Whiskey," which he deposed had been "used and prescribed by him for a number of years."

As in all mail-order medical frauds, while the public was led to believe that individual attention would be given to all letters sent to the Okola Laboratory, the facts were that the correspondence was almost entirely handled by clerks and that "form letters" were used in practically all instances. This, too, in spite of the fact that practically all the letters which were sent out by the Okola Laboratory were signed, "John S. Read, M.D."

After reviewing all of the facts brought out by the investigation of the postal authorities, the assistant attorney-general reported to the postmaster-general:

"I find that this is a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations, and promises, in violation of Sections 3929 and 4041 of the Revised Statutes, as amended; and therefore recommend that a fraud order be issued against the Okola Laboratory, Inc."

As previously noted, a fraud order was issued.

The preceding gives in brief the case of the Okola Laboratory fraud. More complete details taken from memorandum of Assistant Attorney-General Lamar to the postmaster-general will be given in a pamphlet reprint of this matter soon to be issued.[1]

## "BELL-ANS," FORMERY "PA-PAY-ANS, BELL"

For a good many years Bell & Co. have put on the market under the name "Pa-pay-ans, Bell," a tablet consisting essentially of charcoal, sodium-bicarbonate, and ginger, flavored with oil of wintergreen. Of course, the soda, ginger, and charcoal were not featured by the company. The advertising point was the alleged presence of papain, said by Bell & Co. to be the "digestive principle obtained by our own exclusive process from the fruit of the *Carica papaya*." The attempt on the part of the Council on Pharmacy and Chemistry to determine the digestive power of Pa-pay-ans, Bell, resulted negatively, thus verifying results reported by other chemists.

Reading some of the "literature" on "Pa-pay-ans, Bell," might, if it were believed, lead one to think that with a bottle of this preparation on hand the balance of the physicians' therapeutic armamentarium could be thrown into the discard. Peritonitis, cholera morbus, alcoholism, sea-sickness, vertigo, dyspepsia, flatulence, and the vomiting of pregnancy are some of the many conditions for which Pa-payans, Bell, have been recommended.

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[1] "The Okola Laboratory," 4 cents, postpaid.

Within the past few weeks physicians have been notified that the name of "Pa-pay-ans, Bell," has been changed to "Bell-ans." The reason for the change, according to the company, is that the new name is "shorter, pleasanter sounding, and better." As the most valuable asset of a "patent medicine" company is the name of its product, it is hardly likely that the name of Pa-pay-ans, Bell, would have been changed for purely euphonious reasons. As previous analyses indicate that there is not, and probably never has been, any appreciable amount of papain in the product, and as the older name, "Pa-pay-ans," carries with it the impression that papain is the essential drug, a more rational reason for the change of name should be sought. There is little doubt that this might be found in the federal Food and Drugs Act, especially that part which refers to misbranding. Bell & Co. are changing a misleading name into a meaningless one.

What physicians think of Bell & Company's method may be gleaned from the letter which follows. It is a copy of letter recently written to the concern:

Bell & Co., Orange, New Jersey.

*Gentlemen:* I acknowledge the receipt of your announcement of the change in name of your product from "Pa-pay-ans Bell" to "Bell-ans."

While I do not wish to obtrude suggestions relative to your business policies, yet I venture the opinion that a name suggestive of the constituents of your tablets would be less vague. Thus "Bicarb-char" or "Soda-char", indicating that they are sodium bicarbonate and charcoal would be more in harmony with pharmaceutical nomenclature.

I would further suggest that your lavish distribution of blotters which contain your advertisement of the specific for all gastric ills, *viz.*, "Pa-pay-ans Bell," or after the new style, "Bell-ans," be limited to professional circles, and not made so obtrusive in post-offices, banks, etc.

The above suggestions are made with the conviction that you want to be considered entirely honest with the medical profession, of which I, personally, am not convinced, and that you would regret deeply the discovery on the part of the profession of your making it a convenient means of exploiting your wares. Fresh in the memory of us all, who more or less prescribed Antikamnia and Resinol, are the experiences with remedies which now are advertised as cure-alls or specifics which had their introduction through the profession.

Personally, I consider your methods as the last word in brazen effrontery, which the medical profession should resent.

Otis O. Benson, M.D., Tower, Minn.

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# *Association News*

## THE ATLANTIC CITY SESSION

### Announcement of American Medical Special Train

The American Medical special train is routed this year over the Michigan Central, "Niagara Falls Route," via Buffalo, and then via the Pennsylvania Railroad direct to Atlantic City. The special train (all-steel equipment) will leave Chicago, Sunday June 21, at 6:30 p. m. and will reach Atlantic City in time for dinner the following day. This gives the opportunity on the return trip of taking advantage of stopover privileges at Philadelphia and at Buffalo, which will allow side trips from Philadelphia to New York and Boston, or to Baltimore and Washington; and from Buffalo to Niagara Falls, Toronto, the Thousand Islands, Alexandria Bay and other northern points. Further details will be announced next week.

J. Rawson Pennington, Chairman,
Committee on Transportation and Place of Session.

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## MEDICAL PROFESSION AND THE RED CROSS

### Plan of Committee to Provide Physicians in all Communities to Cooperate in Times of Emergency

The following circular has been sent to the various component county medical societies of the country:

*"To the Secretaries of the Several County Medical Societies:*
*"Dear Sirs:*

"The undersigned have been constituted a committee by the President of the American Medical Association to cooperate with the American Red Cross, in the matter of medical work.

"In February, 1913, the following communication was addressed to you, but fearing it has miscarried, we here repeat our appeal in the hope that on account of the importance of the subject you will bring it to the attention of your society at the first possible opportunity.

"The committee feels that a great deal of substantial good will come to all communities by providing a body of representative physicians of approved qualifications to direct or participate in medical work carried on by the Red Cross in different localities in times of emergencies and to advise with the representatives of that society on questions of medical policy and procedure. Besides its activity in emergency relief work, the Red Cross is engaged in an educational campaign for the mitigation of human suffering and the saving of lives. So far it has extended this movement only to the teaching of prevention of accidents and first aid to the injured, but it is hoped in future that it shall include popular instruction in the prevention of disease. These medical committees are not in any way bound to this educational work of the Red Cross, but members of the committees who may be interested are invited to correspond with the First Aid Department of the Red Cross.

"In the opinion of this committee the plan may be properly considered under the following headings:

"1. Object. Primarily this service is designed to meet local emergencies when conditons of disaster are such as to call for the intervention of the Red Cross. When exigencies come about in any community the Red Cross would be glad to feel that it might call on carefully selected physicians in that community to lend their aid in the medical work incident to the situation.

"2. Organization. It is desired to have in every county a central committee of five physicians, two of whom shall be the president and secretary of the county medical society, *ex officio*. The president of the county medical society shall select the other three members, preferably from the list of councilors or of the executive committee. This committee should be designated the 'Committee on Red Cross Medical Work.' The names and residences of the members, immediately after organization, should be reported to the chairman of the American Medical Association committee. In case of disaster, requiring relief action by the Red Cross, these county committees will be called on to nominate qualified medical men in their respective counties for Red Cross service. The committees will also serve in an advisory medical capacity to the Red Cross in time of disaster and in other lines of Red Cross activity as indicated in a preceding paragraph.

"3. Qualifications. The certification of physicians by county committees will be accepted as ample evidence of the physical, moral and professional qualifications of the gentlemen recommended for appointment. It may be pertinent to state that service in time of disaster may entail severe physical effort, and physical fitness of appointees to perform hard work is, therefore, important.

"4. Compensation. In some instances the Red Cross may require the services of physicians at a distance from their places of residence and for varying periods. Under these conditions the Red Cross will be prepared to pay traveling expenses and a moderate honorarium to be agreed on between the physicians and the national director of the Red Cross.

"It will be obvious to you that the arrangement here proposed is primarily intended to provide for emergencies which may suddenly arise in any community or, on the other hand, may happily never occur. Thus it may be that the committee which we are inviting you to create may never be called into action, while, on the other hand, it may have occasion to perform a very great public service. Your cooperation in the completion of this plan at as early a date as convenient will be appreciated.

"Please address all communications bearing on the contents of this letter to the Chairman, Dr. George M. Kober, c/o The American Red Cross, 716 Union Trust Building, Washington, D. C.

"Yours respectfully,
George M. Kober, M.D.,
*"Chairman.*
"William J. L. Lyster,
*"Major, Medical Corps, U. S. Army.*
"E. M. Blackwell,
*Surgeon, U. S. Navy.*

The present is an especially opportune time to bring this matter before the component societies.

## Correspondence

### Holmes, Not Semmelweis

*To the Editor.*—Anent the interesting letter of Dr. Simon Baruch (The Journal, May 2, 1914, p. 1420), in your last issue concerning the priority of Holmes over Semmelweis "in the discovery" of the contagiousness of puerperal fever, Dr. Holmes himself states that his essay was read before the Boston Society for Medical Improvement, and at the request of the society printed in the *New England Quarterly Journal of Medicine and Surgery* for April, 1843. According to Hirst of Philadelphia the observations of Semmelweis were made in the Vienna Hospital in 1846-1848, while another paper which attracted wide attention was from the pen of Sir James Y. Simpson on "The Analogy between Puerperal and Surgical Fevers," published in 1850. That the facts will establish the priority of Holmes over Semmelweis would seem to be without question.

It is contrary to facts, however, to consider Holmes as the discoverer, a claim which he never made and which his own words disprove by quotations from writers who recognized the truth as clearly as did he, but long before. Among them Dr. Gordon of Aberdeen, in a treatise published in 1795, said:

> "I had evident proofs of its [puerperal fever's] infectious nature, and that the infection was as readily communicated as that of the small-pox or measles, and operated more speedily than any other infection with which I am acquainted.
>
> "I had evident proofs that every person who had been with a patient in the puerperal fever became charged with an atmosphere of infection, which was communicated to every pregnant woman who happened to come within its sphere. This is not an assertion, but a fact, admitting of demonstration, as may be seen by a perusal of the foregoing table" [referring to a table of seventy-seven cases, in many of which the channel of propagation was evident].
>
> "It is a disagreeable declaration for me to mention that I myself was the means of carrying the infection to a great number of women." After enumerating a number of instances in which the disease was conveyed by midwives and others to neighboring villages, he declares that "these facts fully prove that the cause of puerperal fever, of which I treat, was a specific contagion, or infection, altogether unconnected with a noxious constitution of the atmosphere.
>
> "I arrived at that certainty in the matter that I could venture to foretell what woman would be affected with the disease, on hearing by what midwife they were to be delivered, or by what nurse they were to be attended, during their lying-in, and almost in every instance, my prediction was verified."

I need not take space to cite passages also from White, Armstrong, Gregson, Gooch, Ramsbotham and other, chiefly English, authorities on whose researches Dr. Holmes based his argument, as the entire paper should be read by those interested. What I want to bring out is that the great debt we owe to Oliver Wendell Holmes, in this connection, is *not* that he discovered the contagiousness of puerperal fever, for this he certainly did not do, but that he clearly saw the truth as established by others and with his wonderful power as a master of English prose presented it in his usual attractive and forcible manner.

William W. Root, M.D., Slaterville, N. Y.

### Priority in the Adoption of Higher Entrance Requirements

*To the Editor.*—My attention has recently been called to a letter under the above caption in The Journal, March 21, 1914, p. 951, which may cause some to think that, in a paper read at the last meeting of the Council on Medical Education, I sought in some way to claim priority for the University of Virginia in the matter of requiring a year of college work for admission to the medical course. In view of the wide publicity which The Journal has given to the dates when the various higher entrance requirements were adopted by various medical schools, such an assumption would be anything but flattering to my intelligence, not to mention honesty, and I hasten to plead not guilty

A reference to the paper in question, which was published in The Journal, March 14, 1914, p. 826, will be sufficient, I think, to show that the matter of priority was not in my mind, but that the date was stated simply as one among several facts which, taken together, might be thought to substantiate the opinion that, at the time and under the circumstances mentioned, the adoption of this requirement was "in a way an absurd thing."

R. H. Whitehead, M.D., Charlottesville, Va.

### Rubeola and Choroiditis

*To the Editor:*—Some years ago a child was brought to me who had suddenly developed partial blindness during an attack of rubeola. Ophthalmoscopic examination revealed choroiditis, which advanced to partial atrophy. This case caused me to investigate, and revealed the fact that but few cases of choroidal atrophy can be found which will not furnish a previous history of rubeola.

Swanzy states that rubeola may be the cause of purulent choroiditis, but there is scant if any reference to it in the text-books. In one case an intelligent young woman was referred by me to an eminent oculist for an obscure tumor of the fundus following rubeola. This tumor disappeared to be followed by choroidal atrophy. I have found no drugs of any value—the treatment must be preventive.

C. Drew, M.D., Jacksonville, Fla.

## Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

### SACCHARIN IN DIABETES

*To the Editor:*—Please tell me the objection to the use of saccharin in cases of diabetes in doses of 2 to 3 grains per day as a sweetening agent. I know that the use of this preparation has been prohibited in a commercial way. Do you know anything to take its place for use in diabetes?

R. J. Hill, M.D., Minneapolis.

Answer.—Benzosulphinid (saccharin) is an antiseptic and tends to hinder slightly the action of the digestive ferments. An excessive quantity of it may, therefore, impair digestion. In the moderate doses in which it is used for sweetening beverages of diabetics it is not liable to do harm. The prohibition applies to the use of this preparation in the sweetening of preserved foods. In amounts of over 0.3 gm. (5 grains) per day, it has been pronounced harmful by the government Referee Board of Chemists. Glycerin can be used for sweetening the food of diabetics and may properly be used as an alternative in place of saccharin.

### LITERATURE ON DISEASE AND CRIME

*To the Editor:*—I am looking for information on defective physical conditions as the cause of crime, or physical defects as a cause of criminal and degenerate acts. Can you direct me to something not too voluminous?

G. H. Van Dyke, M.D., Chicago.

Answer.—The following is a list of articles on this subject:

Talbot, E. S.: Stigmata of Degeneracy in the Aristocracy and Regicides, The Journal, Nov. 10, 1894, p. 710.
Talbot, E. S.: A Study of the Stigmata of Degeneracy among the American Criminal Youth, The Journal, April 9, 1898, p. 849.
Noble, C. P.: The Law of Degeneracy in Its Relation to Medicine, *New York Med. Jour.*, Dec. 24, 1910.
Lombroso, Cesare: Crime: Its Causes and Remedies, Boston, Little Brown & Co., $4.50.
Payse, F. M.: The Physical Causes of the Slighter Forms of Mental Defects in Children, *Lancet, London*, 1901, clxi, p. 11.
MacDonald, A.: Physical Stigmata of Degeneration, *Med. Fortnightly*, July 25, 1907.
Hughes, M. R.: Some Anomalies of the Stigmata of Degeneracy, *Virginia Med. Semi-Month.*, July 24, 1908.
Noble, C. P.: Hereditary Hypoplasia in Man Due to Degeneracy, The Journal, Feb. 13, 1909, p. 552.
Fry, D. R.: Pathologic Condition of the Nose, Throat and Ears as Etiologic Factors in Degeneracy, *Ohio State Med. Jour.*, September, 1910.
Hughes, M. R.: Recurrent Insanity and the Stigmata of Degeneracy, *Med. Fortnightly*, November, 1910.

Anderson, C. H.: Are Criminals Insane Individuals? *Illinois Med. Jour.*, April, 1914.
Bowers, P. E.: Constitutional Immorality, *Illinois Med. Jour.*, April, 1914.
Sleyster, R.: Some Data Gathered in a Study of 269 Murderers, *Illinois Med. Jour.*, April, 1914.
Hill, G. M.: Ways and Means of Preventing Physical, Mental and Moral Degeneracy, *Illinois Med. Jour.*, April, 1914.
Kohler, F.: [illegible] Tuberkulose unter ihre kriminelle Bedeutung, [illegible] 9-1910, xv, 31.
Appleton, H. [illegible] with some Suggestions for its Cure, *Sout.* [illegible] ember, 1905.
Vento, R. P.: Medical Examination of Criminals, *Rev. de Med. y Cirurg.*, ix, No. 6.
Ashmead, A. S.: Syphilis in Relation to Crime, *Jour. Cutan. Dis.*, 1906, xxiv, 571.
Ashmead, A. S.: Suppositions of Relationship of Crime with Syphilis, *Am. Jour. Dermat. and Gen.-Urin. Dis.*, 1908, xii, 384.
Ravogli, A.: Syphilis in Relation to Crime, *Ohio Med. Jour.*, 1906-1907, ii, 68.
Bowers, P. E.: Causes of Crime, *New York Med. Jour.*, July 19, 1913.
Sneve, H.: Influence of Parental Diseases, Habits and Heredity on Juvenile Crime, *Bull. Am. Acad. Med.*, October, 1913.
The Criminal Class and the So-Called Criminal Type, editorial, The Journal, Jan. 21, 1911, p. 201.
The Pathogeny of Crime, editorial, The Journal, May 18, 1907, p. 1708.

### STATES WITH WHICH VIRGINIA RECIPROCATES

*To the Editor:*—Please tell me with what states Virginia reciprocates.

E. H. T.

Answer.—Virginia has reciprocated since June, 1904, with Delaware, District of Columbia, Georgia, Indiana, Maryland, Michigan, Nebraska, Texas and Wisconsin; since June, 1901, with Kentucky, Minnesota, Missouri, New Hampshire and West Virginia; with Iowa and Maine since December, 1907; with Wyoming since June, 1908; with Louisiana since December, 1908; with Arkansas, North Carolina and Vermont since June, 1910, and with Tennessee since 1911.

### LITERATURE ON STAMMERING

*To the Editor:*—I should like to secure the best and most reliable information concerning the treatment of stammering.

Forest A. Carpenter, M.D., Statesville, N. C.

Answer: The following is a list of articles on this subject:

Bluemel [illegible] Defects of Speech, Vol. I, The [illegible] II, Contemporaneous Systems [illegible] ossibilities and Limitations, New [illegible] $5.
Leary, T. G.: Treatment of Stammering with Special Relation to Respiratory Exercises, *Intercolonial Med. Jour. Australasia*, November, 1908.
McCready, E. B.: Stuttering in Schoolchildren: Its Prevalence and Treatment, *St. Louis Med. Rev.*, August, 1909; abstr., The Journal, Sept. 25, 1909, p. 1061.
Makuen, G. H.: Brief History of the Treatment of Stammering with some Suggestions as to Modern Methods, The Journal, Nov. 6, 1909, p. 1590.
Gutzmann, H.: Treatment of Stuttering, *Therap. Monatsh.*, 1909, No. 10; abstr., The Journal, Nov. 20, 1909, p. 1786.
McCready, E. B.: Congenital Word Blindness as a Cause of Backwardness in Children. A Case Associated with Stuttering, *Pennsylvania Med. Jour.*, January, 1910; abstr., The Journal, March 5, 1910, p. 818.
Kenyon, E. L.: Can Stammering be Treated Successfully through Agency of Public School? The Journal, June 4, 1910, p. 1859.
McCready, E. B.: Relation of Stuttering to Amusia, The Journal, July 16, 1910, p. 208.
Scripture, E. W.: Stuttering, *Arch. Pediat.*, June, 1910.
Makuen, G. H.: Treatment of Stammering, The Journal, Sept. 3, 1910, p. 853.
Langwill, H. G.: Stammering and Its Treatment, *Practitioner*, London, October, 1910.
Aronsohn, O.: Stammering, *Berl. klin. Wchnschr.*, Jan. 23, 1911; abstr., The Journal, March 4, 1913, p. 703.
Leary, G.: Treatment of Stammering, *Australian Med. Jour.*, Nov. 25, 1912.
Cadwallader, B.: Treatment of Stuttering and Stammering and Voice Defects through Science and Art of Speech and Singing, *Cleveland Med. Jour.*, December, 1912.
McBeath, H. F.: Correction of Impediments of Speech in Our Public Schools, The Journal, Nov. 1, 1913, p. 1610.

### ANTIPLAGUE SERUM

*To the Editor:*—Please give me some information as to value of the prophylactic serum or vaccine in bubonic plague. Also state what firms will supply the serum or vaccine.

Charles P. Harwood, M.D., Carrollton, Ky.

Answer.—Several forms of antiplague serum have been recommended for both prophylaxis and treatment, the Yersin-Roux serum being the most important. Vaccination by Haffkine's vaccine is also recommended. A vaccine containing killed plague bacilli is marketed in this country by H. K. Mulford Company. See N. N. R., 1914, page 249.

## Medical Economics

This Department Embodies the Subjects of Postgraduate Work, Contract Practice, Legislation, Medical Defense, and Other Medicolegal and Economic Questions of Interest to Physicians

### DIFFERENT VIEWS ON CONTAGIOUS-DISEASE PREVENTION

Two physicians and a lay editor have recently expressed opinions concerning different phases of the contagious-disease problem which seem to be particularly interesting. Dr. A. J. Chesley, head of the Epidemiologic Division of the State Board of Health of Minnesota, in a recent report, cited the cases of three traveling men who, while touring the state, had become infected with small-pox, and said it would never be known how many cases had resulted from exposure to these men. Ninety-two per cent. of the public money spent in 1913 on the isolation of small-pox cases, he asserts, was wasted, because that percentage of the persons who had small-pox had never been vaccinated. He believed that there was no fairness or common sense in maintaining isolation hospitals for the care of persons who carelessly or deliberately chose to permit themselves to remain susceptible to small-pox by neglecting vaccination. This attitude, though apparently correct, is not likely to be adopted universally until public welfare is placed above what the individual is pleased to call "personal liberty."

#### WHO IS RESPONSIBLE?

A physician of La Crosse, as reported in the Racine (Wis.) *Times*, recognizing that small-pox and the other contagious diseases constitute a condition and not a theory, against which the public must be protected and for which it must pay, suggests that families obliged to submit to quarantine should be compensated by the state for their time and enforced idleness. This opinion is based on the ground that the quarantine is not for the protection of the individual in whose home the disease exists, but is for the general protection of society. Therefore, society should pay, notwithstanding, it may be added, that probably the sick individual and the family, in the case of small-pox, may have neglected such a prudent measure as vaccination, and may thus have been responsible for the waste of public funds and the loss of his time caused by the quarantine.

#### HEALTH CONDITIONS OF THE NEGRO

The editor of the Houston (Tex.) *Post* calls attention to another phase of the contagious-disease problem in deploring the presence of an unusual number of small-pox cases, chiefly among the colored population of a number of the cities of his state. The editor's conclusions apply, not to small-pox particularly, but to general sanitary and living conditions among the poor and colored fraction. This class contributes more or less directly, he believes, to all forms of disease and ill health. His paper has often endeavored to impress on the minds of the public that the white people cannot afford to ignore living conditions among the negroes. Disregarding philanthropic conditions entirely, the editor says, we must see that the lives and health of the whites depend largely on the sanitary conditions in localities inhabited for the most part by negroes, who are compelled to live amid conditions that foster all sorts of communicable diseases, which the negroes in the capacity of laborers and servants may and doubtless do communicate to employers and their families. It is said that not only is the high death-rate among the negroes in the Southern cities a reproach to the white people and white governments, but also the conditions responsible for it constitute a menace to the health of the white people themselves. The wider application of this thought and the remedy are obvious. The comments here presented call attention to problems which touch the people practically and affect them directly. The prevention of infectious diseases is the greatest problem with which public health authorities have to deal.

# *Medical Education and State Boards of Registration*

## COMING EXAMINATIONS

Arkansas: Little Rock, May 12. Sec., Dr. W. S. Stewart, Suite 404 Citizens Bk. Bldg., Pine Bluff. Homeopathic: Little Rock, May 12. Sec, Dr. I. J. Brooks, 219 East 10th St., Little Rock. Eclectic: Little Rock, May 12. Sec., Dr. C. E. Laws, Ft. Smith.

California: Los Angeles, June 16. Sec., Dr. C. B. Pinkham, 135 Stockton St., San Francisco.

Delaware: Dover and Wilmington, June 16-18. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

Florida: Palatka, June 17-18. Sec., Dr. E. W. Warren, Palatka.

Georgia: Atlanta and Augusta, June 3. Sec., Dr. C. T. Nolan, Marietta.

Illinois: Coliseum Annex, Chicago, May 12-14. Sec., Mr. Amos Sawyer, Springfield.

Iowa: Iowa City, June 11-13. Sec., Dr. Guilford H. Sumner, State House, Des Moines.

Kansas: Kansas City, June 9-12. Sec., Dr. H. A. Dykes, Lebanon.

Kentucky: Louisville, June 3-5. Sec., Dr. A. T. McCormack, Bowling Green.

Louisiana: New Orleans, June 4-6. Sec., Dr. E. L. Leckert, Macheca Bldg., New Orleans. Homeopathic Board: New Orleans, May 4. Sec., Dr. Edward Harper, 702 Macheca Bldg., New Orleans.

Maryland: Baltimore, June 15. Regular Board: Sec., Dr. J. McP. Scott, Hagerstown. Homeopathic: Baltimore, June 15. Sec., Dr. O. N. Duvall, 1817 N. Fulton Ave., Baltimore.

Massachusetts: Boston, May 12-14. Sec., Dr. Walter P. Bowers, Room 159, State House, Boston.

Michigan: Ann Arbor, June 9. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

Mississippi: Jackson, June 16-17. Sec., Dr. E. H. Galloway, Jackson.

Missouri: St. Louis, June 15-17. Sec., Dr. J. A. B. Adcock, Jefferson City.

Nebraska: Lincoln, May 27. Sec., Dr. H. B. Cummins, Seward.

New Jersey: Trenton, June 15-16. Sec., Dr. H. G. Norton, 429 E. State St., Trenton.

New York: May 19-22. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

North Carolina: Raleigh, June 9. Sec., Dr. Benj. K. Hays, Oxford.

Ohio: Columbus, June 2-5. Sec., Dr. George H. Matson, State House, Columbus.

Pennsylvania: Philadelphia, June 1-3. Sec., Mr. Nathan C. Schaeffer, Harrisburg.

South Carolina: Columbia, June 9. Sec., Dr. A. Earle Boozer, 1802 Hampton Ave., Columbia.

### Illinois January Report

Mr. Amos Sawyer, acting secretary of the Illinois State Board of Health, reports the written examination held at Chicago, Jan. 14-16, 1914. The number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 96, of whom 77 passed and 19 failed. The following colleges were represented:

| College | Year Grad. | Total No. Examined |
|---|---|---|
| PASSED | | |
| Bennett Med. College | (1911) (1912, 2) (1913, 11) (1914, 2) | 16 |
| Chicago College of M. & S. | (1911, 2) (1913, 10) | 12 |
| Hahnemann Med. Coll. & Hosp. of Chicago | (1912) (1913, 4) | 5 |
| Hering Medical College | (1913) | 1 |
| Illinois Medical College | (1910) | 1 |
| Jenner Medical College | (1913) | 1 |
| National Medical University, Chicago | (1903) (1904) | 2 |
| Northwestern University | (1907) (1913) | 2 |
| Rush Medical College | (1912) (1913, 4) (1914, 3) | 8 |
| University of Illinois | (1912) (1913, 4) | 5 |
| Drake University | (1909) (1912) | 2 |
| Johns Hopkins University | (1907) (1910) (1913) | 3 |
| Harvard Medical School | (1911) (1912) | 2 |
| Barnes Medical College | (1895) (1906) (1910) | 3 |
| Washington University | (1913) | 1 |
| University of Nebraska | (1913) | 1 |
| Jefferson Medical College | (1908) | 1 |
| University of Pennsylvania | (1897) | 1 |
| Meharry Medical College | (1904) (1910) (1913, 2) | 4 |
| [illegible] | (1913) | 2 |
| [illegible] | (1898) | 1 |
| [illegible] | (1895) | 1 |
| [illegible] | (1911) | 1 |
| University of Naples | (1906) | 1 |
| FAILED | | |
| Chicago College of Med. and Surg. | (1909) (1910) (1911, 2) (1912) (1913, 3) | 8 |
| Hahnemann Med. Coll. and Hosp. of Chicago | (1910) (1912) | 2 |
| Hering Medical College | (1913) | 1 |
| Jenner Medical College | (1913) | 1 |
| National Medical University, Chicago | (1903) (1909) | 2 |
| University of Illinois | (1912) | 1 |
| Central College of P. and S., Indianapolis | (1897) | 1 |
| Detroit College of Medicine | (1910) | 1 |
| American Medical College | (1912) | 1 |
| St. Louis College of Physicians and Surgeons | (1907) | 1 |

### Pennsylvania Reciprocity Report

Mr. N. C. Schaeffer, secretary of the Bureau of Medical Education and Licensure of Pennsylvania, reports that 20 candidates were granted licenses through reciprocity during the year 1913. The following colleges were represented:

| College | Year Grad. | Reciprocity with |
|---|---|---|
| LICENSED THROUGH RECIPROCITY | | |
| University of Michigan, Coll. of M. & S. | (1904) | Michigan |
| Washington University | (1911) | Missouri |
| Ohio Medical University | (1907) | Ohio |
| Starling-Ohio Medical College | (1909)<br>(1911) | Ohio<br>Ohio |
| Hahnemann Med. Coll. and Hosp., Philadelphia | (1896)<br>(1899) | Indiana<br>West Virginia |
| Jefferson Medical College | (1890)<br>(1894)<br>(1911) | Virginia<br>New Jersey<br>New Jersey |
| University of Pennsylvania | (1894)<br>(1899) | Delaware<br>New Jersey |
| University of Vermont | (1909)<br>(1910) | Vermont<br>Vermont |
| University College of Med., Richmond | (1901)<br>(1907)<br>(1909) | West Virginia<br>Virginia<br>Virginia |
| University of Virginia | (1905)<br>(1908)<br>(1911) | Virginia<br>West Virginia<br>Virginia |

Five candidates were granted licenses by oral examination. The following colleges were represented:

| College | Year Grad. | Total No. Examined |
|---|---|---|
| PASSED | | |
| Baltimore Medical College | (1898) | 1 |
| Baltimore University | (1900) | 1 |
| Columbia Univ., Coll. of P. & S. | (1894) | 1 |
| Queen's University, Medical Faculty | (1891) | 1 |
| University of Athens, Greece | (1906) | 1 |

# *Book Notices*

The Origin and Development of the Lymphatic System. By Florence R. Sabin. Monographs of the Johns Hopkins Hospital Reports, New Series, No. 5. Paper. Price, $2. Pp. 94, with 19 illustrations. Baltimore: Johns Hopkins Press, 1913.

This monograph contains a discussion of existing theories, and reports further investigation which supports the author's previous important contributions on the origin of the lymphatic system. The older ideas of the lymphatic capillaries as extensions of simple interstitial spaces is now, and especially through the work of the author and others at Johns Hopkins, completely refuted. They are distinct tubes of endothelium, derived originally by budding from the veins, and they form closed canals as distinct from tissue-spaces as the blood capillaries themselves. In this article special stress is laid on the importance of endothelium as an active growing functional tissue. When it buds off the veins to form lymphatics it has the peculiar property of avoiding the blood-capillaries, hence forming the independent lymphatic network. These lymphatics invade the body, but apparently never enter the central nervous system, which remains a permanent non-lymphatic area. Lymph-glands are formed by development of lymphocytes around the lymph-vessels. Numerous illustrations add to the value of this important contribution to anatomy and embryology.

Primary Carcinoma of the Liver. By M. C. Winternitz, M.D., *Associate in Pathology, Johns Hopkins University. Monographs of the Johns Hopkins Hospital Report, New Series, No. 3. Paper. Price, 75 cents. Pp. 42. Baltimore: Johns Hopkins Press, 1913.*

This monograph, which is a separate reprint of one of the Johns Hopkins Hospital reports, consists of a discussion of some of the literature and a report of one case observed by the author, two cases from Johns Hopkins studied by others, and two doubtful cases. One of the most important features of primary carcinoma of the liver, itself a rare tumor, is that in certain cases the neoplasm seems to grow by fresh transformation of liver-cells of adjacent territories into cancer-cells. If this is a correct interpretation of the processes observed, it signifies that substances or agents of some sort may diffuse from a malignant tumor into surrounding tissues, and there cause previously normal cells to take on the malignant character of growth, a phenomenon of the greatest significance in the problem of the etiology of cancer. Winternitz does not accept this view, but it will seem to some of the investigators who have studied this condition that his reasons for discrediting their interpretation are not conclusive.

# Miscellany

## Estimating Functional Capacity of Kidneys by Forced Elimination of Preformed Urea

The capacity of the kidneys for urea, chlorid and water excretion, according to G. W. McCaskey (*Med. Rec.*, New York, March 21, 1914), can be determined by surcharging the blood with the different substances in question and determining the rate of excretion of each, first over a brief period of time, while the blood remains heavily surcharged, and again over a longer period to determine the duration of time required to depurate the blood of a morbid excess.

The permeability of the kidneys for urea can be determined with great accuracy, in the absence of marked gastric stasis, by the ingestion of 30 gm. of urea, and furnishes a scientific basis for the regulation of the protein intake. The following technic is adopted by McCaskey: About 6 a. m. the bladder is emptied. Two hours later the urine is collected, and at the same time the patient is given 30 gm. of urea, dissolved in 4 or 5 ounces of water. Just before taking the urea, the patient drinks one-half of about 6 ounces of thin cereal gruel, taking the other half immediately after the urea. No other breakfast is eaten. The urine is then collected every two hours for twelve to twenty-four hours, the urea determined for each two-hour period, including the two hours preceding the ingestion of the urea, and from these data the curve of excretion is constructed.

The highest bihourly output seems to vary in health from 5 to 10 gm. The period during which the highest excretion occurs should be either the first or second two-hour period. If later, it may be due either to delayed absorption or to a slow response on the part of the kidneys. McCaskey states that the late, very wide fluctuations in the urea output found in some cases, after 30 gm. are taken, furnish pretty strong proof that the kidneys may for some reason fail to respond promptly to a large urea content of the blood, which certainly cannot rise and fall as the urea excretion sometimes does. Cases with an excretion much below 20 gm. should be regarded as of somewhat limited functional capacity for urea excretion, while one-half this lowest limit probably represents serious or even dangerous impairment of functions.

## Getting It Out of the Doctors

In April, 1912, suit was brought against two noted surgeons of the German Hospital in New York City for leaving, after operation, two sponges in the plaintiff's abdomen. What actually happened was that the family physician later did a minor operation during which he used two pieces of absorbent cotton. It was those two pieces which the plaintiff assumed had been abiding in his abdomen since his first operation. Newspapers all over the country printed headlines telling how the fellow bunglers had sewed up those two sponges within their victim—first-class copy. When the case came up for trial, it was proved that one of these alleged miscreants had not even been present at the hospital operation; that absorbent cotton is never used in the German Hospital for abdominal sponges; that the family physician had positively assured the plaintiff the cotton he had used had never been inside the latter's abdomen, which he had, furthermore, never opened. The jury ended the suit of that G. P. (in medical parlance, grateful patient). Those surgeons have been harassed through two years and have had to engage counsel at loss to themselves, when their sole crime was having devoted their consideration and skill to a patient who was shown to have had not only one but four serious diseases—hernia, Bright's, diabetes and a heart lesion—and who, through their ministrations, nevertheless still lives. They were sued by that patient for ten thousand dollars. Medical history teems with accounts of such suits, almost always instituted by charity patients. Are there headlines telling of the issue of this suit? Hardly; where would be the news value?—*Harper's Weekly.*

# Medicolegal

## Operating on Nose of Person Stating That He Has a Cold—Basis for Expert Opinions

(*Swadner vs. Schefcik* (*Minn.*), *144 N. W. R. 958*)

The Supreme Court of Minnesota, in affirming in this malpractice case an order granting a new trial but denying the defendant's motion for a judgment notwithstanding a verdict was rendered for the plaintiff, says that the only question before it on this appeal was whether there was evidence to take the case to the jury. The plaintiff consulted the defendant for catarrh, from which he had been for years a sufferer. He testified that he had a cold at the time, and so informed the defendant. The defendant performed two operations on the nose, removing the anterior ends of the lower turbinates. After the second operation, a mastoid abscess appeared, which was operated on.

The first charge of improper treatment was that the first operations were performed while the patient had a severe cold, and that this was improper because of the acute inflammation in the mucous membrane lining the nasal cavity. It was claimed that the defendant should have first reduced the inflammation, and that his operating without so doing caused the mastoid abscess. The court, having examined the evidence, had no difficulty in determining that there was evidence which justified submitting to the jury the question whether or not it was ordinary care and skill to perform the operations on the nose at the time and under the conditions that existed.

As stated, the plaintiff testified that he informed the defendant of his severe cold at the time. The defendant urged that this testimony was incompetent, or at least insufficient as the basis for the opinions of the experts who testified to the impropriety of an operation under such conditions. It is true that, ordinarily, one who is not a medical expert is not permitted to diagnose his own or another's case, but the court thinks that the prohibition does not extend to testimony of this kind. One who is suffering from a cold usually knows what ails him, as do others who associate with him. It would be a technical and rather absurd rule that prevented his testifying to facts so within his own knowledge. The court is satisfied that the testimony was competent and of sufficient weight to be the basis of expert opinion. As to the medical testimony, it is sufficient to say that it made the propriety of an operation a question for the jury.

## Case Showing Right of Recovery for Services Rendered to Injured Employee

(*Newberry vs. Missouri Granite and Construction Co.* (*Mo.*), *163 S. W. R. 570*)

The St. Louis (Mo.) Court of Appeals affirms a judgment in the plaintiff's favor for services rendered to an injured employee of the defendant by the plaintiff and two other physicians and surgeons. The court says that the employee was so severely injured by an explosion in the defendant's stone quarry as to occasion the amputation of both hands. The defendant's president was in St. Louis at the time, as was also its secretary, treasurer and general manager, named Schmalz. Its foreman at the quarry immediately took the injured man to a physician, and that physician, with the consent of the foreman, called in another physician, but neither one was prepared to undertake the operation, and the foreman sent a telephone message to the plaintiff to come at once and undertake it. The plaintiff inquired concerning the matter of compensation, and the foreman said that the company would settle the bill. The foreman then called up Mr. Schmalz and informed him of the serious injury to the employee, and that he had called in the three physicians to care for the employee. Mr. Schmalz was at the time in the company of the president, and consulted with him about the case. The foreman testified that Mr. Schmalz fully approved of all that he had done, telling him to have some one competent to operate and have the local physicians treat and care for the patient, and then to bring him to St. Louis if deemed best. On the other hand, Mr. Schmalz and the president said that they intended no more than that temporary treatment should be given by the local physicians and arranged for permanent treatment at St. Louis. The mere fact, however, that there was this discrepancy in the testimony was a matter for the jury alone. The evidence showed beyond question that the physicians intended to charge the company, and the evidence of the foreman was abundant that he contracted for the company with full authority from the president. Whatever may be said concerning the authority of a general manager of the company to employ a physician to treat one injured in the quarry, no one can doubt the authority of the president in that behalf. The question is not even a debatable one. The injured employee testified in behalf of the plaintiff, and the defendant's counsel drew from the witness that Mr. Schmalz had offered him $500 by way of a compromise, and said, too, that he would pay the physicians $100 for their services. It appearing that no treaty of compromise was pending with respect to the physicians' claims, and that in any event the person to whom the seeming admission of a liability was made in no wise represented the physicians, the evidence was properly received.

### Physicians May Testify as to Men Shrinking From Operations

*(St. Louis Southwestern Railway Co. of Texas vs. Brown (Tex.), 163 S. W. R. 383)*

The Court of Civil Appeals of Texas says that the railway company complained of the admission of testimony by physicians that the ordinary man is inclined to shrink from an operation, and that nowadays nearly every man knows that, when he has to be operated on, he is running some risk, the objection being that it was not a subject of expert testimony, but was an invasion of the province of the jury. While the physicians testified that the chances were very good for a permanent cure of the rupture involved in this case, it was stated that every case is not successful. No class of persons have a better opportunity of knowing the risk of such an operation than physicians, or of the way in which the ordinary man regards an operation. It was also shown that the taking of an anesthetic proved dangerous, and the court thinks it was proper to give the physicians' opinion to the jury to rebut the effect on the jury of the testimony that a cure would result from an operation, and that care was not exercised because the plaintiff failed to resort to an operation. The company pleaded that the plaintiff (Brown) was guilty of negligence in failing to have proper treatment of his injuries, and in failing to have an operation performed. The court s of the opinion that under the circumstances the evidence was admissible.

### Competent to Testify About New Operation

*(Niles vs. Central Vermont Railway Co. (Vt.), 89 Atl. R. 629)*

The Supreme Court of Vermont says that a surgeon was a ness for the plaintiff, and the trial court found him qualified to testify as an expert. He described a comparatively new operation, known as the Murphy operation, in which, in cases like the plaintiff's, a piece of bone is taken from a patient's sound leg and used as a grafted splint on his injured leg. He was asked if the removal of such a piece of bone would impair the sound leg, and, when he answered in the affirmative, was asked to what extent it would impair it, and answered, subject to exception, to the extent of 20 per cent. The only objection urged was that the witness had never performed this operation, nor seen it performed, and consequently was not qualified to testify as an expert regarding the matter referred to in the question. But the finding of the trial court that the witness was qualified was abundantly sustained by the evidence on that question. For it appeared that he had had a long experience in surgery, under exceptionally advantageous circumstances, both in this country and abroad. Actual experience in the Murphy operation was not necessary to qualify him to answer the question objected to.

# Society Proceedings

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## COMING MEETINGS

American Medical Association, Atlantic City, June 22-26.

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American Academy of Medicine, Atlantic City, June 19-21.
Am. Assn. of Genito-Urinary Surgs., Stockbridge, Mass., May 15-16.
American Climatological Association, Atlantic City, June 19-20.
American Dermatological Association, Chicago, May 14-16.
American Gastro-Enterological Association, Atlantic City, June 22-23.
American Gynecological Society, Boston, May 19-21.
American Laryngological Association, Atlantic City, May 25-27.
American Laryn., Rhin., and Otol. Society, Atlantic City, June 19-20.
American Medico-Psychological Association, Baltimore, May 26-29.
American Ophthalmological Society, Hot Springs, Va., May 12-13.
American Orthopedic Association, Philadelphia, June 18-20.
American Otological Association, Atlantic City, May 27-28.
American Pediatric Society, New London, Conn., May 26.
American Proctologic Society, Atlantic City, June 22-23.
American Society of Tropical Medicine, Boston, May 29-30.
American Therapeutic Society, Albany, May 29-30.
American Urological Association, Philadelphia, June 18-20.
Arkansas Medical Society, Eldorado, May 19-22.
Association of American Physicians, Atlantic City, May 12-13.
Conf. of State and Prov. Boards of N. America, Washington, June 19-20.
Connecticut State Medical Society, New Haven, May 20.
Florida Medical Association, Orlando, May 13-15.
Illinois State Medical Society, Decatur, May 19-21.
Iowa State Medical Society, Sioux City, May 13-15.
Maine Medical Association, Portland, June 10-11.
Massachusetts Medical Society, Boston, June 9-10.
North Carolina Medical Society, Raleigh, June 16.
Missouri State Medical Association, Joplin, May 12-14.
National Association for the Study of Epilepsy, Baltimore, May 25.
Nebraska State Medical Association, Lincoln, May 12-14.
New Hampshire Medical Society, Concord, May 13.
New Jersey Medical Society, Spring Lake, June 29.
North Dakota State Medical Association, Grand Forks, May 13-14.
Oklahoma State Medical Association, Guthrie, May 12-14.
Rhode Island Medical Society, Providence, June 4.
South Dakota State Medical Association, Watertown, May 26-28.
Texas State Medical Association, Houston, May 12-14.
West Virginia State Medical Association, Bluefield, May 13-15.

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## TENNESSEE STATE MEDICAL ASSOCIATION

*Eighty-First Annual Meeting, held at Memphis, April 7-9, 1914*

*(Continued from page 1428)*

### The Corynebacterium Hodgkinii

Dr. William Litterer, Nashville: The *Corynebacterium hodgkinii*, a pleomorphic diphtheroid organism, is apparently the etiologic factor in Hodgkin's disease. In my series of four cases, a white staphylococcus was constantly present in all lymph-nodes examined and was more numerous in the later stages of the disease and in the older nodes. The *Staphylococcus albus* probably plays an important part in the causation of the exacerbations, especially inducing the high fever with leukocytosis and a polymorphonuclear increase. Autogenous vaccines of the coccus and bacillus in their relative proportions should be administered in practically every case. Excellent therapeutic results may be derived from their use, more particularly in the early cases.

DISCUSSION

Dr. William Krauss, Memphis: Our former conception that these tumors appear necessarily about the neck, and the inguinal glands primarily, is no longer tenable. Sometimes they are primarily mesenteric, sometimes primarily mediastinal, sometimes primarily in association with the gum, and they, or at least their metastases, have a remarkable tendency to appear in an area of chronic inflammation, so that whenever we have an adenopathy of the neck, the axilla or the groin, and we have, say, an ulcerating tooth and a marked swelling with tumefaction, with the production of tissue greatest in that neighborhood, it really makes our diagnosis Hodgkin's disease.

Dr. John Phillips, Cleveland, Ohio: I have been much interested in Hodgkin's disease. I have had two cases in the last five years in which a recurrent fever kept up for sixteen months. These patients would have variable elevation of temperature for about twelve days, being quite ill; then there would be a period of normal temperature, and the patient during that time was usually well.

**Dr. W. S. Lawrence**, Memphis: It is fairly well established that the Roentgen ray is the main reliance in the treatment of Hodgkin's disease. If that is true, it is interesting to know in what manner it accomplishes the result. Is it the influence of the ray on the organism which presumably is causing the disease, or on the tumor growth? In other diseases associated with micro-organisms we sometimes find that the Roentgen ray will accomplish results, although it will have no effect on the organism itself in pure culture. Tuberculosis of the skin is a good illustration of that. The Roentgen ray has absolutely no effect on the tubercle bacilli, but it has a wonderful influence on skin lesions caused by the tubercle bacilli.

### Present-Day Problems of the Medical Profession

**Dr. W. D. Haggard**, Nashville: Education is the dynamite of civilization. Great safeguards against unworthy practitioners have been initiated by the profession in the laws which they favored for proper examination by the state boards. In spite of the fact that the medical profession has thrown the most rigid preparation for practice, comprising five years, around itself, there are all sorts of would-be practitioners without any real knowledge, who wish to treat diseases of the human body by reading to the victims from a book or rubbing the spine. Fee-splitting, which is one of the most pernicious practices followed, must be eradicated forever.

Autogenous vaccines are far more reasonable, scientific and successful than mixed vaccines in their effect on a given condition, and should always be the first thought of those who have laboratory facilities. The practice of employing mixed vaccines in conditions of obscure etiology in the hope that one or the other may do good, is to be condemned severely.

Public health is purchasable. Within natural limits any community can determine its own death-rate. Tennessee is a healthy state, but by the expenditure of a reasonable amount of money by the state and county, under scientific guidance, it could be made a veritable paradise. The pure-food laws and their enforcement should be sacred to every intelligent citizen. The pure-food inspectors are of more value to a community than an embattled army. The antinarcotic law should be supported by every medical man, druggist and individual. The social diseases are the world-wide problems of the medical profession. The lawmakers of Tennessee should be asked to consider seriously the plan being tried out in New York of making all venereal diseases reportable, without the names. Thus an accurate survey of its exact prevalence would be the first step toward the intelligent curtailment of this monstrous evil.

Fraudulent medical advertising should be stopped. One of the most serious problems is the education of the people against fake medical advertising. When the newspapers of the country understand the enormity of the harm that is inflicted on humanity by their heedless and ignorant advertising of useless or harmful and often malicious forms of treatment for real or imaginary disease, they will surely clean the Augean stables.

### Means of Resuscitation in Apparent Anesthetic Fatalities

**Dr. E. M. Sanders**, Nashville: The most important phase of resuscitation is to recognize its need immediately, and the first step is to establish artificial respiration with tongue drawn out and shoulders slightly elevated, and then decide about the position in which the patient had best be treated. The Trendelenburg position is not indicated in every case and should not be used except when the heart is failing. The pulmotor should be used whenever available. Epinephrin is the best drug and in extreme cases should be introduced into the pericardium.

The possibility of resuscitation bears a definite relation to the time that has elapsed between the cessation of the heartbeat and its reestablishment. Transfusion should be made as soon as possible in all cases not doing well under anesthesia before paralysis occurs. All artificial aids should cease as soon as functions are competent.

(To be continued)

## MEDICAL ASSOCIATION OF GEORGIA

*Sixty-Fifth Annual Meeting, held at Atlanta, April 15-17, 1914*

*(Concluded from page 1429)*

### Cerebrospinal Syphilis

**Dr. W. R. Houston**, Augusta: The treatment of cerebrospinal syphilis must be energetic. The limit of dosage should be the limit of the patient's tolerance for the specific drug. The time for relaxing the vigor of the treatment is to be determined by the disappearance of the clinical symptoms. Irreparable damage may have taken place if we wait for the recrudescence of symptoms. The use of Swift and Ellis' technic for the topical application of salvarsanized serum is yet under discussion. The reports so far seem to indicate that as good temporary results clinically are obtained by the intravenous use of salvarsan, but that the reactions in the fluid are not altered by the administration of the salvarsan into the blood as they are by the local applications. Many interesting theoretical considerations suggest themselves when we come to consider which plan of treatment we should pursue. Amounts of salvarsan equivalent to that contained in the salvarsanized serum may be injected into the cord without danger, and this will enable us to decide definitely as to the effect of the presence of salvarsan in the fluid on the tissue changes. The striking therapeutic successes achieved in what was formerly so intractable a disease as tabes, encourages us to unusual efforts in the employment of every aid in securing an early and accurate diagnosis. With increased ability to cure the disease goes increased obligation to recognize it in time.

### Headaches

**Dr. Will H. Malone**, Marietta: The first step in the treatment of any disease is the removal of the cause, if possible, and this holds true in headaches as well as in any other condition. Nothing could be more irrational than a routine administration of medicine to quiet the suffering without attempting to remove the cause where this is possible. Many forms of headache are susceptible of prompt relief or entire cure by timely and sensible regulation of the life of the patient, his habits, surroundings, influence of occupation, and by the correction of diseases and disorders on which the headache depends. In these various ways may be influenced the headaches of indigestion, biliousness and constipation; of cerebral overwork and emotional excitement; of insolation and eye-strain; of many cases of debility; of bad ventilation; malaria and overstimulation of various sorts; of uterine and ovarian disease and of syphilis.

### Experimental Study of the Abderhalden Test

**Dr. Allen H. Bunce**, Atlanta: I have completed 34 tests for pregnancy, 16 of which were positive, and 17 were negative. In no case have I obtained a negative reaction in a proven pregnancy. However, I did, at first, obtain several positive reactions in cases where pregnancy was known not to exist, but my results here were due to faulty technic, such as obtaining the serum from patients soon after meals when amino-acids were present in the blood. They give a positive reaction to the ninhydrin test. In my last 30 cases I have not had this error occur, since I have found that if any reliance is to be placed on the tests an absolute adherence to the technic must be observed in every case.

My cancer albumin was prepared from a carcinoma of the breast in the same manner in which the placental albumin was prepared. So far, my tests on cancer have only included known positive and known negative cases, but from the results to date, I believe we have here a very valuable aid to substantiate and strengthen our clinical diagnosis in doubtful cases.

### Report of Work Done Toward Eradication of Hookworm Cases in Georgia

**Dr. A. G. Fort**, Atlanta: The sanitary index from 47 counties shows that of the 14,469 homes inspected, the toilet conditions at 7 homes averaged 75 per cent., at 21 homes averaged 25 per cent., at 10,217 averaged 10 per cent., and 4,224 averaged 0. It shows that in the 35 counties where dispensaries were operated we examined 16,531 rural schoolchildren, and of that number 13,160 were infected with hookworm, or 79 per cent. To aid in this work, 52 counties have made appropriations, and that during the time we have carried on the work 51,166 people have been examined. Of this number, we have treated by our field force 14,632 and have reports from 1,400 physicians showing that they have treated 19,848 cases, which gives us a total record of cases treated in Georgia of 34,480. In order to accomplish these results, our field force has given 1,922 lectures and the central office has given 201 talks on sanitation and hookworm disease. We have had an attendance at these talks of 158,149.

### The More Rational Methods of Treating Aural Diseases

**Dr. Dunbar Roy**, Atlanta: During the last six years I have been able in at least 90 per cent. of the cases of acute inflammation of the tube and middle ear to abort the inflammation by topical applications of astringents to the inside of the tube with small cotton or wire applicators passed into the mouth of the tube. In the use of the Eustachian catheter we have the only rational method of inflating and treating the middle ear. The catheter is introduced under direct observation by means of the pharyngoscope. The mucous membrane of the Eustachian tube and middle ear must be treated, and in no other way can we put medicaments on these parts except by the use of the catheter.

## PHILADELPHIA COUNTY MEDICAL SOCIETY

*Meeting held April 8, 1914*

The President, Dr. William D. Robinson, in the Chair

### A Case of Osteitis Deformans

**Dr. Eleanor C. Jones**: The disease began at the age of 53 years. The patient has lost about 4 inches in height, because of the bowing of the legs and curvature of the spine. Her head is large and square-looking, the thorax small and emaciated, the clavicles thickened. The spine has the appearance of sinking into the pelvis. The pelvis is wider than normal, and all the long bones are bowed. The arteries are somewhat atheromatous, and the second aortic sound is accentuated and there is a loud systolic murmur present. The urine showed a cloud of albumin. The Wassermann was negative. The summary of the bone changes found by roentgenographic examination were those of new bone formation, porosity, a softening arthritis and bone absorption. No suggestions could be made as to the cause of the disease in this patient.

### The Correlation of Appendicitis and Other Abdominal Affections

**Dr. Levi J. Hammond**: Aided by abundant clinical evidence we must conclude that the frequency of the coexistence of abdominal inflammations with appendicitis is more than a coincidence. A critical analysis of the findings in 920 operations at the Methodist Episcopal Hospital, Philadelphia, would seem to indicate that the existence of the appendix establishes an important anatomic and physiologic relation to the remainder of the digestive system. It must therefore, be considered as a specialized and functioning organ blending with the remainder of the digestive tract. The principal characteristic of the appendix is lymphoid tissue. One property of lymphoid tissue is to produce leukocytes, and it is only after the sclerosed appendix has impaired or destroyed the function of the lymphoid tissue that acute appendicitis develops. As to the demonstrable anatomic relation of the appendix with other abdominal organs, I would especially refer to that of the mesoappendix and the ovary by a peritoneal fold extending directly from the former to the latter. This relationship explains the frequent association of the appendix and adnexal disease. Of all the organs, the liver is the one which appendicitis causes to suffer most. Epigastric symptoms must be regarded as reflex phenomena caused in the domain of the vagus nerve by irritation in the nerve terminals of the appendix. Gastric dyspepsia in chronic or recurring appendicitis is thus explained, dependent as it is on trouble within the secretory, motor or vasomotor function of the viscera. Neuralgic or neurotic pains are in like manner referred to the hip, the thigh or to the thorax as in pneumonia and acute tuberculosis. Chronic duodenal and gastric ulcers would seem to be dependent on septic thrombi of appendiceal origin. Biliary lithiasis, chronic cholecystitis and hepatitis furnish forceful evidence in support of their origin in part, at least, in primary infection of the appendix. Diagnosis must be based on existence of a painful zone. This can always be elicited at the point at which the appendix is located, if palpation combined with rectal and vaginal examination be thorough.

Recurrent attacks of supposed typhoid have proved to be chronic appendicitis, and prompt cure followed removal of the appendix. When differentiation of the various abdominal affections is doubtful and the morbid symptoms justify operation, this should be done through an incision allowing intervention with the viscera and the appendix, with the ovary and the appendix, or with the kidney and the appendix. Faisans says that appendicitis is so frequent that one must always think of it and seek for it systematically by aid of interrogation and a complementary examination as one seeks for syphilis and alcoholism.

## INTERNATIONAL SURGICAL ASSOCIATION

*Fourth Congress held in New York, April 13-16, 1914*

*(Continued from page 1427)*

## SYMPOSIUM ON GASTRIC AND DUODENAL ULCER

### Ulcer of the Stomach and Duodenum

**Dr. H. Hartmann** and **Dr. P. Lecene**, Paris: Duodenal ulcer is certainly more frequent than was thought some years ago; nevertheless its frequency has been exaggerated in France. We noticed on an average one ulcer of the duodenum for eight or ten of the stomach. The symptomatology described by Moynihan and the anatomic signs supposed to be presented by the pyloric vein are far from being above criticism. Moynihan's symptomatology is that of pyloric spasm, and the pyloric vein is very unreliable as regards both situation and disposition. At the base of callous ulcers of the stomach, which are situated especially on the lesser curvature, lesions of neuritis are frequently found, accounting for the persistent pains which are one of the elements of the symptomatology of these ulcers. The cancerous evolution on the borders of callous ulcers of the stomach do not appear to us as often as certain writers assert. We have noted it in about one-fifth of the cases of callous ulcer. This frequency is still great enough to justify the treatment of these ulcers by resection when it is possible. Evidence shows that in ulcerous cases one has often to deal with gastric tissues wholly diseased, and in this lies the reason of the great importance of postoperative medical treatment in these cases. The value of roentgenoscopy and roentgenography in the diagnosis of gastric ulcer is universally recognized, but its value in the diagnosis of ulcer of the duodenum seems to be much less certain.

The surgical treatment of gastric and duodenal ulcer must not be opposed to the medical treatment; the first is only the frequently necessary complement of the second. The ultimate results of medical treatment are far from being as good as was formerly supposed. All gastric or duodenal ulcers showing resistance to medical treatment belong to the surgeon. Posterior gastro-enterostomy, with a short jejunal handle, performed on the pyloric cavern itself, at its most sloping point, is the operation of choice in all cases of juxtaposition ulcers of the stomach or duodenum. Experimentally and clinically it has been shown that with this operation the gastro-intestinal passage functions perfectly if care is taken to make it exactly on the pyloric cavern. The indications for the exclusion of the pylorus need to be more clearly shown. The absolute exclusion should be limited to certain cases. In cases of pyloric callous ulcers when cancerous degeneracy is suspected, pylorectomy is preferable when anatomically possible. In callous ulcers of the lesser curvature it is better to have recourse to excision of the ulcerous area. The still fairly high mortality of these gastric resections will certainly decrease in proportion as their indications and technic become more clearly defined.

### Chronic Ulcers of the Stomach and Duodenum

DR. WILLIAM J. MAYO, Rochester, Minn.: A historical review of this subject divides itself into three periods. The first period was from 1893 to 1900 when only those cases showing pyloric obstruction were operated. During the second period, from 1900 to 1906, knowledge on this subject grew rapidly as the result of surgical observation. In the third period, from 1906 to the present time, there has been marked improvement in diagnosis. Up to Dec. 31, 1913, we have operated in 1,841 cases of acute and chronic ulcers of the stomach and duodenum at St. Mary's Hospital. Of this number 457 were females and 1,384 males. The earlier clinical view of a preponderance of females over males is thus shown to be in error. The ulcers were situated in the stomach in 636 of the 1,841 cases, and in the duodenum in 1,205. The percentage in the last 1,000 cases accurately observed was 73.8 per cent. duodenal and 25.2 per cent. gastric. Of the gastric 29 per cent. were females and 17 per cent. males. Of the duodenal 21 per cent. were females, and 79 per cent. males. The pyloric vein was a factor in differentiating between an ulcer in the pyloric end of the stomach and one in the first part of the duodenum. The more common seat of gastric ulcers was along the lesser curvature, more often on the posterior than on the anterior wall. The character of ulcers of the stomach differs in many respects from those of the duodenum. A large number of acute, subacute and chronic ulcers are cured permanently by medical treatment, but if cures fail to show permanency after a reasonable length of time the patients should be treated surgically. The patient treated medically is in far greater danger of death from hemorrhage, perforation, obstruction or cancerous degeneration than he is from operation. Gastrojejunostomy is the most generally useful operation for gastric ulcer and has a wide field of application, especially in ulcers in the vicinity of the pylorus. It may be said that the greater the obstruction within limits, the more immediate and permanent the results of gastrojejunostomy. Posterior jejunostomy is the operation of choice, but adhesions may prevent its use in certain cases. Local excision of the ulcer without gastrojejunostomy has in our experience sometimes failed to effect a cure, and therefore gastrojejunostomy should be done in addition to excision.

Our operations for duodenal ulcer have been extraordinarily good, 98 per cent. of the patients being either cured or greatly relieved. In these operations we have used the Heineke-Mikulicz pyloroplasty, or what has been found still better, the gastroduodenostomy of Finney. We have abandoned the continuous silk sutures in gastrojejunostomy for interrupted musculoperitoneal sutures of fine silk, with continuous sutures of chromic catgut for the inner rows. As a secondary operation for the relief of pain due to fixation of pyloric end of the stomach about an ulcer, the unilateral exclusion of von Eiselberg has given permanent relief.

### Etiology, Pathology and Operative Technic of Gastric and Duodenal Ulcer

DR. E. PAYR, Leipsic: There are two principal theories in regard to the etiology of these ulcers, that of a gastric or duodenal lesion and that of a nervous origin by vasomotor spasm leading to a localized ischemia of the mucosa. Neither theory explains every case. Some mechanical causes play a part in the localization and form of the ulcers. The bacteriotoxic lesions have also a certain part in their causation. There are two types of duodenal ulcers according to their position in the posterior or anterior wall; the first presents a tendency to perforation, the second to hemorrhage. It is impossible to establish the frequency of the cancerous transformation of a gastric ulcer, or to establish before the operation a decided distinguishing diagnosis between callous ulcer and gastric cancer. The callous ulcer of the stomach should be resected every time the general condition of the patient allows it, especially if it is situated at a distance from the pylorus on the lesser curvature and on the posterior surface. In all other cases, posterior gastro-enterostomy constitutes the operation of choice. The excision of gastric ulcers gives unsatisfactory results unless accompanied by gastro-enterostomy. The excision or resection of duodenal ulcers should be exceptional, except in the presence of persistent hemorrhage, imminent perforation or suspected cancer. The best intervention for duodenal ulcer consists in a gastro-enterostomy combined with a unilateral pyloric exclusion after the von Eiselberg method. For ulcers of the lesser curvature and those of the posterior surface, total segmentary resection with axial suture of the stump gives the best results. For certain cases of ulcer near the pylorus, especially with the rate of acidity increased, after resection there should be a wide implantation of the gastric stump in the first jejunal handle after the technic of Reichel. This process perhaps guards against peptic ulcer. If the latter occurs, resection is advisable. Gastro-enterostomy for a simple callous ulcer necessitates a consecutive treatment with atropin and alkalines for at least a year. In cicatricial stenosis of the pylorus, gastro-enterostomy gives excellent results. In active ulcers distant from the pylorus the results are less reliable. Only in 50 or 60 per cent. of these cases were the results satisfactory. The mortality of resection of ulcers by Reidel's method was 10 per cent. or less and the clinical results were good.

### Discussion on Gastric and Duodenal Ulcer

DR. A. LAMBOTTE, Brussels: It is clearly established that pyloric exclusion constitutes an important supplementary procedure to gastro-enterostomy. The simplest method of effecting this exclusion is by ligature of the pylorus. I have had recourse to this procedure for several years. It had been said that the occlusion is not permanent, that the ligature falls into the intestinal cavity. The ligature can be applied so that this does not happen. If the thread is drawn tight, to the point of arresting the circulation of the blood, it cannot fail to produce a section of the tissues, and with the aid of peristalsis there is not much delay in expelling the ligature into the intestinal cavity. When, on the other hand, the ligature is loosely drawn, so as just to bring the mucous membrane into contact, the thread will not be drawn into the intestine. I have not had occasion to verify by sight the permanency of the occlusion thus effected, but I have been able to prove its efficiency by using it in intestinal surgery. Each time that I do an entero-anastomosis I close the excluded end by a simple ligature placed some centimeters below the artificial anus. In the latter case I have been able to verify the closure several months later. Linen thread is employed and the ligature is placed habitually over the sphincter, which is located by palpation. The great advantage of this method is its extreme simplicity, the entire procedure taking only a few seconds. After this method of pyloric exclusion there need be no fear of hemorrhage, and, furthermore, it can be used in the weakest patient.

It is necessary to seek the origin of peptic ulcers in the operative technic that has been followed, rather than in the pathologic disposition of the patient. I have encountered only one case in more than 600 operations on the stomach, and am convinced that traumatisms produced by instruments or the fingers of the operator are responsible for peptic ulcers and that this also explains the variable percentage of peptic ulcers observed by different surgeons.

DR. CHARLES L. GIBSON, New York: The following statistics have been collected from the Hudson Street, Roosevelt and St. Luke's hospitals during the past eighteen months by Dr. P. R. Turnure. During this time there were 74 operations in cases of perforating gastric and duodenal ulcer; of these 47 were gastric and 27 duodenal ulcers. Of 26 patients operated on within twelve hours after perforation, 16 were cured and 10 died; of 7 patients operated on in from twelve

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[illegible] Medical College 22\180

to twenty-four hours after perforation, 1 was cured and 6 died; of three operated on in from twenty-four to forty-eight hours after perforation, 2 were cured and 1 died; of 12 coming to operation after forty-eight hours, 4 were cured and 8 died. The complications encountered in the order of frequency were subphrenic abscess, pneumonia, gastric hemorrhages, secondary adhesion and empyema. Of 48 cases, 16 broke down between the seventh and twelfth days. Gastro-enterostomy was done in 17 cases and of these patients 15 were cured and two died.

**Dr. Sonnenburg**, Berlin: The diagnosis of gastric and duodenal ulcer is by no means a simple matter. In cases of recently perforated duodenal or gastric ulcer the history is rarely characteristic. In chronic cases pain is frequently absent. In ten cases of perforated duodenal ulcer, five gave no history of gastric disturbance, and in three the gastric disturbance was noted for only a few days or a week. The characteristic history of periodic attacks of hunger-pain with intervals of apparent well-being noted by Moynihan has been absent in many of our cases. On the whole, the history was more characteristic in the chronic cases. The pain in the right side of the abdomen near the umbilicus, which has been mentioned as characteristic, was frequently absent or found in other abdominal regions. Increasingly good results from operative treatment will accrue as operative technic improves and diagnosis becomes more accurate through roentgenoscopy. Max Cohn has found that stiffening of the ventricle and too rapid emptying of the stomach are in no sense pathognomonic, only accompanying symptoms of gastric and duodenal ulcer, but that retention of bismuth in the duodenum is of great importance. Abnormal gas formation is also of great import, especially gas bubbles in the first part of the duodenum. The majority of physicians in Berlin agree that the diagnosis of duodenal ulcers remains a probable and not an absolute diagnosis. We have found the relative frequency of gastric and duodenal ulcers at variance with that of American surgeons. In our series of 80 cases there were 13 duodenal ulcers and 67 gastric. A low leukocyte-count is of grave diagnostic import, indicating a virulent infection. In my experience the mononuclear leukocytes fall rapidly to normal in favorable cases, while in the lethal cases they remain high to the end. The leukocyte-count is more inconstant and fluctuating in cases of ulcer than in those of appendicitis. Peritonitis following perforating ulcers often runs a benign course with encapsulation of the abscess. In the late stage of the disease the leukocyte-count indicates the treatment to be followed.

**Dr. Arthur Dean Bevan**, Chicago: Dr. Rosenow's experimental work on the etiology of ulcers shows that certain micro-organisms have a selective activity for certain anatomic localities. With certain strains of micro-organisms Dr. Rosenow has produced endocardial lesions; with others he has produced arthritis, and with others gastric and duodenal ulcers, etc. In ten or twelve instances, cultures from duodenal ulcers have been introduced intravenously into animals and have produced typical gastric and duodenal ulcers. This selective action of certain micro-organisms is not the only factor in the production of these ulcers; the lowered resistance of the individual and the local condition due to the corrosive action of hydrochloric acid also play a part in the etiology of these ulcers. Proper medical management has enormous possibilities in gastric and duodenal ulcer, and the patient who receives proper medical attention after operation has a shorter and smoother convalescence. The unfortunate results after operation for gastrojejunal ulcer may largely be prevented by proper medical management.

**Dr. John B. Murphy**, Chicago: From clinical observation alone it seems evident that gastric and duodenal ulcer are practically metastatic lesions. This may be illustrated by their occurrence at that season of the year when infections of the upper air-passages are most frequent, and they also run the classical course of such infections. After using the round button for a number of years, I employed the suture method for a time, but now have returned to the use of an oblong button, which makes hemorrhage an impossibility.

**Dr. Howard Lilienthal**, New York: When the ulcer is located near the pylorus, the entire ulcer-bearing portion of the stomach should be removed. The added risk of removing the entire danger-zone is less than leaving it for a future operation when cancer shall have developed. When the patient is in good condition the entire ulcer area can be removed at one operation, but when there is an indurated mass and one cannot see where it begins, the best procedure is to do a gastro-enterostomy with the minimum amount of manipulation, and then three weeks after the tumor can be removed and a pylorectomy performed. This method in indurated ulcers will give a lessened mortality.

**Dr. A. G. Gerster**, New York: With gastro-enterostomy and pyloric exclusion and even with resection of the pylorus, we sometimes have recurrences. There seems to be no sure way of permanently interrupting the passage of the food through the alimentary canal. After operation, patients experience relief, but they are not cured, as the ulcer is due to a condition which is not understood; and unless operation is reinforced by proper dietetic and hygienic management the relief is only temporary.

**Dr. Willy Meyer**, New York: As pathologic examination at the time of operation cannot always be relied on to determine definitely the possibility of cancer, the necessity of excising the entire ulcerous area cannot be emphasized too strongly. Some of the undesirable sequelae of these operations may be avoided if pyloric exclusion has a wider field. The two-stage operation may be good in some cases, but when every minute counts and the patient has the signs of hemorrhage, we should exclude the pylorus entirely. A modified Jianu operation and the use of Hultl's wire-stitching instrument may be made applicable to operations on gastric and duodenal ulcers.

**Dr. A. J. Ochsner**, Chicago: Animal experimentation has shown that it is very difficult to produce gastric or duodenal ulcers unless the animal is first rendered anemic, or unless certain strains of micro-organisms are introduced according to the method of Rosenow, or unless the circulation is very much interfered with. When we find in normal persons and in animals a condition in which it is so difficult to establish ulcers, this should be accepted as absolute proof that in the development of our methods of treatment provision should be made for restoration from a very severe condition. This is confirmed by the histories of these cases which habitually show an abuse of normal feeding. There has been long-continued irritation due to hyperacidity in the peptic ulcers. The patient has swallowed, perhaps, septic material from the teeth, the pharynx or the tonsils for years. These are some of the factors which keep up conditions favorable for the establishment of ulcers, and they correspond to the conditions in which it is possible to establish experimental ulcers. Consequently we have found many cases seemingly incurable in which if alkalinity is established and maintained, and anemia and faulty feeding overcome, a cure has been effected and maintained. When the patient is in a depraved physical condition, the two-stage operation is of the greatest importance.

**Dr. William L. Rodman**, Philadelphia: We all believe that gastro-enterostomy has its limitations; while patients make operative recoveries, clinically they are not cured. It therefore seems that if more radical treatment can be employed without increasing the operative risk, it ought to be considered. We have been kept from removing the entire ulcerous area by an exaggerated idea of the operative mortality. Communication with one hundred prominent surgeons on this subject has resulted in statistics from fifty, embracing 375 radical operations. In 204 of these, pylorectomy has been done, and in 174, excision in the larger part of the stomach. The mortality in all was a little more than 5 per cent. (5.4 per cent.). The mortality of the pylorectomies was about 8 per cent. and that of the excisions less than 2 per cent. A careful analysis of the mortality tables has convinced me that many deaths are due to poor judgment in the selection of patients for pylorectomy who should have had a preliminary gastro-enterostomy and then later a pylorectomy.

DR. WILLIAM J. MAYO, Rochester, Minn.: There are some points in Dr. Rosenow's work that require further experiment. Strains of streptococci have produced acute ulcer but they have not produced chronic ulcer. Some ulcers seem to be chronic from the beginning. We have been making some experiments to find out if obstruction is a factor in causing ulcers to become chronic. If cancer develops on an ulcer it is never in the base, but always in the overhanging margin; when cancer is found in the base of the ulcer it may be assumed that it has been cancerous from the beginning. If ulcers are within 1½ inches from the pylorus they are essentially duodenal. A one-stage operation is desirable when it can be done; the two-stage operation is only for the poor risks.

DR. BRÜNING, Giessen: The symptom-complex as described by Moynihan occurs in many cases of ulcer of the stomach but is absent in others. There is no way in which one can be absolutely certain as to the location of the ulcer. In operating on pyloric ulcers it is very important that the field of operation should not be subjected to too much manipulation or traumatism. The von Eiselberg *Ausschaltung* method is undoubtedly the best. It is my custom to cut around the entire stomach musculature a little above the ulcer and down to the mucous membrane. About this I lay a fascial strip which is pulled firmly and sewed in a ring. Over this the muscular serosa is again joined. A gastro-enterostomy on the anterior pylorus ends the operation. If the pylorus is ligated according to the method of Wilms, no food can irritate the ulcer, and all peristaltic waves are retarded. It is important to keep the stomach-contents alkaline, as acid increases the peristaltic action. Only small amounts of food should be given, as large amounts cause an expansion of the stomach, which initiates a response in the form of a contraction-wave. By these means I keep the entire field in the vicinity of the ulcer at rest.

*(To be continued)*

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# Current Medical Literature

## AMERICAN

Titles marked with an asterisk (*) are abstracted below.

### American Journal of Insanity, Baltimore

*Special Number, LXIX, No. 5, pp. 835-1086*

1 Psychiatric Clinic and Community. S. Paton, Princeton, N. J.
2 Specialism in General Hospital. W. Osler, Baltimore.
3 Purpose of Psychiatric Clinic. A. Meyer, Baltimore.
4 Sources and Direction of Psychophysical Energy. William McDougall, Oxford, England.
5 Autistic Thinking. E. Bleuler, Roche Harbor, Wash.
6 Personality and Psychosis. A. Hoch, New York.
7 Personal Factor in Association Reactions. F. L. Wells, Waverley, Mass.
8 Study of Neuropathic Inheritance. F. W. Mott, London.
9 Etiology of Pellagra and Its Relation to Psychiatry. O. Rossi, London.
10 Psychic Disturbances Associated with Disorders of Ductless Glands. H. Cushing, Boston.
11 Primitive Mechanisms of Individual Adjustment. S. Paton, Princeton, N. J.
12 Dementia Problems. K. Heilbronner, Utrecht, Holland.
13 Interrelation of Biogenetic Psychoses. E. Jones, Toronto.
14 Prognostic Principles in Biogenetic Psychoses, with Special Reference to Catatonic Syndrome. G. H. Kirby, New York.
15 Anatomic Borderline between So-Called Syphilitic and Metasyphilitic Disorders in Brain and Spinal Cord. C. B. Dunlap, New York.
16 *Mental Disorders and Cerebral Lesions Associated with Pernicious Anemia. A. M. Barrett, Ann Arbor, Mich.

16. **Mental Disorders and Pernicious Anemia.**—Barrett has studied clinically the mental disorders of 11 cases of pernicious anemia, and in 9 of these a histologic study of the brain was made. The symptomatology of these cases showed considerable variety. Two were cases of epilepsy; 2 were not to be differentiated from dementia praecox; 1 was a questionable manic-depressive psychosis, and 6 presented a characteristic picture of an asthenic state in which there developed a mental disorder of a paranoid type. It is to these paranoid conditions that this study is particularly devoted.

Brief accounts of 6 cases are given by Barrett. The first 2 of these showed that slight tendency toward delusional elaboration. In the remaining 4 the paranoid features were well developed. The cases, as a whole, have in common an irritability, and a suspiciousness which forms the ground on which develop the delusions of persecution. The content of the delusions is usually influenced by the somatic-neurologic symptoms and the situation in which the patient is placed as a result of these disturbances. In some instances there were auditory hallucinations to which the patient reacted with strong affect. In several cases there was confabulation, which suggested that seen in the Korsakow's symptom complex. There was no marked deterioration present, the comprehension and orientation were usually clear, except for rare episodes, in which they were slightly disturbed. In two instances the mood was slightly expansive. In a number of instances the course showed remission in the intensity of the symptoms and these corresponded to the remissions in the physical conditions. Underlying the development of the mental condition in all but one of these cases was a hereditary predisposition. In several instances there were a number of occurrences of mental abnormalities or insanity among the ancestors. In all cases of pernicious anemia with mental disorders studied, hereditary factors were found in the greater number.

The histologic changes in cord and brain as a whole, are not of a specific type, but rather those which occur in conditions of chronic intoxication and resemble those found in chronic alcoholism, namely, the occurrence of increased lipoid products in cells, glia overgrowth, vessel changes, miliary hemorrhages and intramedullary fiber degeneration. The similarity to a toxic type is further shown in the axonal type of reaction which was found in two instances, a change which has often been noticed in the Korsakow's symptom complex and various forms of toxic neuritic disorders. As in toxic processes the vessels are severely affected.

Clinically, Barrett points out there are features in these paranoid cases which resemble closely those seen in chronic and subacute toxic conditions, especially the chronic alcoholic delusional states. These are the occurrence of the suspiciousness and irritability, the development of the delusions of persecution, the auditory hallucinations and occasional memory impairment and confabulation.

### American Journal of Physiology, Boston

*April, XXXIV, No. 1, pp. 1-126*

17 Circulation of Blood in Man at High Altitudes. I. Pulse-Rate and Blood-Pressure. E. C. Schneider and D. L. Sisco, Colorado Springs, Colo.
18 *Circulation of Blood in Man at High Altitudes. II. Rate of Blood-Flow and Influence of Oxygen on Pulse-Rate and Blood-Flow. E. C. Schneider and D. L. Sisco, Colorado Springs, Colo.
19 *Study of Mechanisms by Which Muscular Exercise Produces Acceleration of Heart. H. S. Gasser and W. J. Meek, Madison, Wis.
20 *Nerve Control of Thyroid. J. M. Rahe, J. Rogers, G. G. Fawcett and S. P. Beebe, New York.
21 *Variability of Blood-Pressure and of Vasomotor Irritability in Anesthetized Dog. R. S. Hoskins and H. Wheelon, Chicago.
22 *Studies in Fatigue. C. M. Gruber, Boston.
23 *Variations in Sensory Threshold for Faradic Stimulation in Normal Human Subjects. E. G. Martin, P. R. Withington and J. J. Putnam, Jr., Boston.
24 *Two Types of Reflex Fall of Blood-Pressure. E. G. Martin and P. G. Stiles, Boston.
25 *Influence of Food, Posture and Other Factors on Alveolar Carbon Dioxid Tension in Man. H. L. Higgins, Boston.

18. **Rate of Blood-Flow and Influence of Oxygen on Pulse-Rate and Blood-Flow.**—The rate of blood-flow in the hands of the six men examined by Schneider and Sisco was increased by residence on Pike's Peak by an amount varying from 30 to 76 per cent. The increase in the rate of flow has been associated in part with an augmented rate of heart-beat and a fall in the venous pressure, also in part with a dilatation of the arterioles. The breathing of an oxygen rich mixture slowed the heart-rate in each of the six subjects to a greater degree on Pike's Peak than in Colorado Springs. The average retardation was 14 per cent. at 14,109 feet, and

5.4 per cent. at 6,000 feet. The arterial pressure was not clearly altered at either altitude during oxygen inhalation; but the pulse, with one exception, was fainter and softer. Oxygen inhalation diminished the rate of blood-flow in the hands from 4 to 20 per cent. on Pike's Peak while the flow was not ordinarily altered in Colorado Springs. In view of the beneficial influence of oxygen inhalation—the retardation of the heart-rate and diminution in the rate of blood-flow—it was concluded that oxygen want induces the adaptive high altitude circulatory changes.

19. **Effect of Exercise on Heart.**—Acceleration of the heart at the beginning of voluntary exercise in the normal animal is chiefly due to the decrease in tone of the cardio-inhibitory center. Gasser's and Meek's evidence for this conclusion is the following: Electrocardiograph records confirm the work of Bowen and Buchanan that acceleration takes place as early as the cardiac cycle following the initiation of the exercise. Acceleration of the heart at the beginning of exercise persists after the removal of the accelerator mechanism. The actual increase in number of beats due to a given amount of exercise has been found to be practically the same in six dogs before and after removal of the stellate ganglia. One of these animals was observed for over four months. Acceleration on exercise is reduced after section of the vagi provided that all asphyxial effects are excluded. After the removal of the accelerators and subsequent section of the vagi, marked acceleration of the heart may still be produced by a short period of exercise. This is associated with the cyanosis following vagotomy and on the second day when the animal is able to do the same work without such a marked cyanosis the increase following exercise is greatly reduced. It may be increased again by asphyxiating the dog for some thirty seconds. After tying off the adrenals neither asphyxia nor exercise gave a marked increase in heart-rate. Exercise involving asphyxial conditions may then be accompanied by a secretion of the adrenals. In the normal animal with the vagi intact this secretion of adrenalin can hardly be supposed to affect the heart-rate. It may, however, cause an increase in the amplitude and force of contraction.

In six dogs the heart-rate after removal of the accelerators was found to be remarkably constant, averaging about 72 beats per minute. The resting pulse-rate of each animal is therefore believed to depend more on accelerator tone than on any other factor. After removal of all nervous control and elimination of the adrenals exercise may still cause a small acceleration of the heart. This is attributed to the increased temperature of the blood. Acceleration of the heart occurs on exercise after vagotomy and extirpation of the adrenals. The amount though small is more than can be accounted for by increased temperature of the blood. Acceleration may therefore be brought about through the accelerators if necessary. Our work leads us to believe that the accelerators are a factor of safety and that in exercise their action is superimposed on that of the vagi only in times of great need. Aside from this, their chief function is maintaining the level of the resting pulse.

20. **Nerve Control of Thyroid.**—The authors summarize their experimental results as follows: The average difference of iodin, expressed in mg. per gram of fresh gland, between the two thyroid lobes of seven normal dogs was 0.0055 mg. The average difference found when the superior vessels, with accompanying nerve fibers, of one lobe were stimulated was 0.1351 mg. The average difference found when the stimulus was applied to the vagus peripherally to the superior ganglion, the nerve being cut central to the ganglion and ligated peripherally to the stimulus, was 0.1699 mg. The average difference found when stimulus was applied to the intact vagus was 0.2640 mg. In Series 3, two glands were stimulated forty-five minutes and thirty minutes, respectively. If the loss in the remaining five glands which were stimulated three hours is averaged it will be found that a loss of 0.3588 milligrams per gram of gland occurred.

In no case did they fail to get a loss after stimulation. There seems to them to be no reasonable doubt from these results that the thyroid is at least in part under nerve control, and that its physiologically active substance is discharged into the circulation in response to a nerve stimulus.

21. **Variability of Blood-Pressure.**—Mean arterial blood-pressure in the individual anesthetized dog under laboratory conditions at different times was found by Hoskins and Wheelon to be fairly constant. Forty-six determinations in twenty-one dogs at intervals of five to ten days showed an average maximum deviation of 4.8 per cent. The greatest individual deviation from the average was 17 per cent. The pressor effect of standard doses of epinephrin injected at different times is proportionately somewhat less constant. The average maximum deviation from the average was 14 per cent. in twenty-one animals. The greatest individual deviation was 54 per cent. Similar results were secured with nicotin. The average maximum deviation was 15 per cent. in nineteen animals. The greatest individual deviation was 45 per cent. The reaction consisted of a concatenation of features often giving "reaction pictures" characteristic for each animal. The constancy of blood-pressure and of the reactions to epinephrin and nicotin is of a degree to permit their use as criteria of activity and irritability of the sympathetic nervous system.

22. **Studies in Fatigue.**—Gruber found that curare increases the threshold of the normal muscle but not the threshold of a muscle in which the nerve endings have degenerated. Epinephrin is an antagonist to curare and decreases, in five minutes or less, the curare threshold, in some cases to normal. Fatigue increases the threshold of a curarized muscle, and epinephrin antagonizes this fatigue. Gruber concludes that the substance on which curare acts is probably different from that on which fatigue acts. It either degenerates on nerve degeneration, is transformed by muscle atrophy or is inexcitable to electric stimuli.

23. **Faradic Stimulation in Normal Human Subjects.**—Daily observations for several weeks on nine subjects, all following a regular somewhat pressing routine, showed that at the beginning of the week the irritability tends to be high, that from then till the end of the week there is fairly continuous decline in irritability, as judged by the sensory threshold, and that following the interruption of the routine by the intervention of Sunday the irritability returns to its original high point. This is interpreted by the authors as a result of general fatigue incident on routine and restoration of nervous tone following a marked interruption therein.

24. **Two Types of Reflex Fall of Blood-Pressure.**—Martin and Stiles report the results of an attempt to bring the Martin method for the physiologic calibration of induction shocks to bear on the analysis of the depressor reaction.

25. **Alveolar Carbon Dioxid Tension in Man.**—The alveolar $CO_2$ tension was found by Higgins to rise after the intake of food and remains high so long as the food is in active digestion. The alveolar $CO_2$ tension is higher when one is in a relaxed position than when one is in an erect position. Thus the alveolar $CO_2$ tension is markedly higher standing than sitting, and higher sitting than lying. The taking of coffee, without food, caused a fall in the alveolar $CO_2$ tension. These variations, especially those from changing position, do not appear to be due to changes in the H-ion concentration of the blood (independent of the $H_2CO_3$); but apparently some other agent is affecting the respiratory center to cause these changes. A high alveolar air is coincident with vasodilatation, and a low alveolar $CO_2$ tension with vasoconstriction.

## Archives of Internal Medicine, Chicago

*April 15, XIII, No. 4, pp. 509-672*

26 *Systemic Blastomycosis. A. M. Stober, Chicago.
27 Id. R. A. Krost, A. M. Stober, Chicago, and M. J. Moes, Dubuque, Iowa.
28 Id. T. Churchill and A. M. Stober, Chicago.
29 Id. M. Lewison and H. Jackson, Chicago.
30 Id. H. J. Myers and A. M. Stober, Chicago.
31 Id. T. H. Boughton, Lawrence, Kan., and S. N. Clark, Hospital.
32 Id. T. H. Boughton, Lawrence, Kan., and A. M. Stober, Chicago.
33 Id. H. Jackson, Chicago.
34 Id. R. E. Bechtel and E. R. LeCount, Chicago.
35 Id. F. B. Riley and E. R. LeCount, Chicago.
36 Id. J. S. Eisenstaedt, Chicago, and T. H. Boughton, Lawrence, Kan.
37 Id. P. F. Shaffner, Chicago.

38 *Multiple Primary Malignant Tumors; Two Cases in Dogs. F. K. Bartlett, Chicago.
39 Fatty Infiltration (Lipomatosis) of Auriculoventricular Bundle of His, with Sudden Unexpected Death. F. Nazum, Chicago.
40 *Blood-Pressures. J. H. Barach and W. L. Marks, Pittsburgh.
41 *Mechanism of Cardiac Displacements in Pulmonary Tuberculosis. M. Fishberg, New York.

26. **Systemic Blastomycosis.**—Vaccination with blastomycetes and their products for therapeutic purposes was performed by Stober in three cases, two systemic cases and one case of cutaneous infection. The material used consisted of the filtrate and the suspension of the triturated membrane of bouillon cultures grown at room temperature for periods varying from two to six months. The cultures were killed by heat (110 C.) and preserved with 0.8 per cent. chloretone. Subcutaneous injection of either the filtrate or suspension produced an area of induration varying in size according to the quantity used. A few of the larger areas became soft and fluctuating, owing to the formation of pus, which was sterile in all instances examined. Such indurations and abscesses were more constant and pronounced when the suspension was used, and did not occur with small quantities of the filtrate. A certain amount of pain was noted the first few days at the site of injection.

The general effect of such injections was usually a rise in temperature of from one-half to 2 degrees. This became apparent in from six to twenty-four hours and sometimes persisted seventy-two hours or longer. With the rise of temperature occurred a feeling of general malaise and pain in the back and extremities. Pain, however, was more especially manifest in and about the local lesions, in which a distinct inflammatory reaction occurred, consisting of pain, swelling, increased discharge, and often bleeding from the ulcerated surface. This receded in from twelve to forty-eight hours. The crusts became detached, the ulcers decreased in size and general improvement followed. Deep abscesses approached the surface and ruptured, and healing of old fistulas occurred. These effects were quite as apparent from small amounts of the filtrates as from larger amounts of the emulsions. The latter produced more general disturbance and temperature; in fact, a rise of temperature was noticed in three cases not blastomycotic in which sterile abscesses followed the injection of 4 c.c. of the emulsion.

38. **Multiple Primary Malignant Tumors.**—Multiple primary malignant tumors, according to Bartlett, occur in approximately 0.2 per cent. of all cases of malignant tumors. Certain of them that originate close together in one type of tissue are indicative of a localized tendency to malignant degeneration. Others that are essentially bilateral, occurring in the ovaries, testicles, kidneys and adrenals, are indicative of a tissue predisposition, dependent in most instances on an anomalous embryonal development. Besides these two classes there is another general class of cases, two-thirds of which is composed of multiple primary malignant tumors, the location and arrangement of which is strongly indicative of a system involvement, affecting mainly the reproductive, the gastro-intestinal and the cutaneous systems. In the other third of this class of cases, the tumors are distributed miscellaneously, and apparently have no common features. The two cases reported by Bartlett belong to the latter class, each animal having one tumor dependent indirectly on a metabolic disturbance, and another tumor distinctly of embryonal anlage.

40. **Blood-Pressures.**—In 90 per cent. of a series of 656 healthy young men Barach and Marks found that the maximum blood-pressure was under 150 mm. Hg. It would be still lower if we could eliminate psychic effect. In 96 per cent. of a series of 338 cases the minimum pressure when read at the fifth phase did not exceed 100 mm. Hg. In 87 per cent. of a series of 312 cases the minimum pressure, when read at the fourth phase, did not exceed 100 mm. Hg. On reexamination of the 13 per cent. in the series of 312 cases, we found that 99.4 per cent. had a minimum blood-pressure not over 100 mm. Hg. In 92 per cent. of the total 650 cases the minimum pressure did not exceed 100 mm. Hg at the time of the first examination. In 88 per cent. of a series of 629 cases the pulse-pressure ranged between 20 and 70 mm. Hg. There was no constant relation between the pulse-pressure and the diastolic pressure. In 75 per cent. of a series of 742 cases the pulse-pressure comprises anywhere from 20 to 80 per cent. of the diastolic pressure. There was no relation between physical efficiency, which also means circulatory efficiency, and pulse-pressure percentage of diastolic pressure. In a series of 344 cases, the poorer half gave practically the same pulse-pressure to diastolic pressure percentage as the stronger half, with their better circulatory system.

41. **Cardiac Displacements in Pulmonary Tuberculosis.**—In a large number of cases of phthisis in which Fishberg looked for the position of the heart while examining the thorax, he found it dislocated in a large proportion. Of 115 consecutive cases of pulmonary tuberculosis in 58, or 50 per cent., the heart was dislocated. Of 85 instances with early lesions 31, or 36 per cent., showed cardiac displacements. Of these 22 were displacements to the left and 9 to the right. In other words, 70 per cent. of the displacements were toward the left in early and second-stage cases of tuberculosis. Of 29 far-advanced cases, 27 showed cardiac dislocation, of which 15 were to the left and 12 to the right. Among 18 far-advanced cases with right-sided lesions, or in which the lesion was more extensive in the right side, 14 showed dislocations to the right and 4 to the left, and in one the heart was in its normal location. Of 19 left-sided lesions, or lesions more extensive on that side, there were 15 displacements to the left, one to the right; in one instance there was no displacement at all. Here the displacements were about equal between the two sides, and, with some exceptions, the shifting of the heart was toward the more affected side.

The dislocation is usually produced by traction exerted from the affected side. Pulmonary collapse and retraction, cavitation and fibrous bands running from the pleura to the pericardium drag the heart out of its normal place. Pressure exerted by a vicariously emphysematous lung on the opposite side greatly assists in displacing the heart to the affected side, or, in bilateral lesions, to the side which has the older or more serious lesion. In many cases we can determine in which side the tuberculous lesion is located, or in bilateral lesions in which side the older or more extensive lesion is located, by determining the location of the heart.

Dislocations take place more often toward the left hemithorax than toward the right for various anatomical reasons, mainly, however, because of the oblique position of the heart from right to left, and the strong attachment of the mediastinum to the central tendon of the diaphragm, which greatly counteracts traction exerted from the right pleura and lung. As a result about two-thirds of all displacements are toward the left side. In far-advanced cases the displacements are about equal between the two sides of the chest, and dextrocardia is not uncommon. Acquired dextrocardia is almost invariably of tuberculous origin.

In many cases of phthisis the heart is not only dislocated, but also rotated on its sagittal or vertical axis. In the normal position the cardiac apex is nearer the chest wall than the base. Traction exerted on the right side of the mediastinum may bring the base of the heart nearer the chest wall and push or pull the apex away from it. Elevation of the diaphragm also has a great influence on the position of the heart, and together with pleuropericardial adhesions may dislocate the heart in any manner—upward, downward, to the right or left; may bring it in a horizontal or vertical position, etc.

In the majority of cases the diagnosis of displacement can be made by percussion, auscultation and roentgenoscopy; but in some cases only the side of the heart adjoining the healthy lung can be mapped out by percussion, while on the opposite side its dulness merges with that of the pulmonary or pleural lesion and cannot be differentiated easily, and at times even the Roentgen ray is of no avail. In dextrocardia a good guide is the cardiac impulse. When only one point, with an impulse is found, it is usually the right ventricle that pulsates and not the apex, because in these cases the latter is turned away from the anterior chest wall; if two points with pulsation are found the one to the left represents the apex and the one to the right the base or the right ventricle.

While tachycardia and dyspnea of phthisis are usually due to toxemia of the disease, the cardiac displacements are also responsible to some extent. Many patients cured of tuberculosis remain with permanent cardiac embarrassment because of the displacement of the heart.

### Arizona Medical Journal, Phoenix

*April, 11, No. 3, pp. 5-36*

42 Functional Capacity of Kidney and Consideration of Quantitative Methods of Its Determination. J. I. Butler, Tucson.
43 Absence of Right Kidney. C. E. Yount, Prescott.
44 Artificial Pneumothorax in Pulmonary Tuberculosis. W. W. Watkins, Phoenix.
45 *Preparation of Nitrogen for Artificial Pneumothorax—Convenient Method. C. N. Boynton, Phoenix.

45. **Preparation of Nitrogen for Artificial Pneumothorax.**—Boynton uses ammonium nitrite, freshly prepared by mixing in solution pure sodium nitrite and pure ammonium chlorid. This forms, in solution, ammonium nitrite and sodium chlorid. The application of heat to the solution decomposes the ammonium nitrite into nitrogen gas and water. In the actual process, all glassware, rubber-tubing and water are sterilized in steam or by boiling before the apparatus is set up. The apparatus consists of a generating flask containing the two salts in solution, connected by rubber-tubing to a Wolff bottle in which the gas is washed through a solution of bichlorid of mercury. The gas then passes into a pressure flask in which it replaces the sterile water, forcing the latter into a sterile bottle, which constitutes the storage bottle for the water for the operation. The nitrogen obtained by this method is said to be 100 per cent. pure, absolutely sterile and more easily prepared. Twenty grams of the combined chemicals used in this method will yield four times the volume of nitrogen gas obtainable by the use of 150 grams of chemicals in the absorption method.

### Boston Medical and Surgical Journal

*April 23, CLXX, No. 17, pp. 637-672*

46 *Treatment of Cases of Mental Disorder in General Hospital. P. C. Knapp, Boston.
47 Medical Inspection of Immigrants at Port of Boston. A. J. Nute, Boston.
48 Ptosis—Cause of Gynecologic Failure. F. S. Kellogg, Boston.
49 Physiologic Cost of Insufficient Protective Clothing. G. W. Fitz, Boston.
50 Fracture of Clavicle. F. E. Peckham, Providence, R. I.

46. **Treatment of Mental Disorder in General Hospital.**—It is not practical in Knapp's opinion to receive and care for such patients in a general hospital unless there be a special service under the charge of a visiting neurologist familiar with mental diseases and their treatment. The average American internist is too ignorant of mental and nervous diseases to deal properly with such cases. Something more is requisite than restraint while in the hospital and commitment at the earliest opportunity. The visiting physician must be familiar with mental diseases, he must be able to make a sound prognosis as well as diagnosis, must know how the patient is likely to behave and be ready to assume risks and to take proper precautions. He must have the control of his patients and their treatment without interference from administrative officers, and must be alone responsible for the treatment, the stay in the hospital, restraint and commitment. Only under such conditions can the reception and treatment of cases of mental disorder in general hospitals be of full benefit to the patient and the community.

### Bulletin of American Academy of Medicine, Easton, Pa.

*April, XV, No. 2, pp. 65-118*

51 Social Factors Affecting Volume of Crime. J. L. Gillin, Madison, Wis.
52 Relation of Crime to Adolescence. W. S. Hall, Chicago.
53 Physical Basis of Criminality. C. R. Henderson, Chicago.
54 Physical Basis of Crime from Standpoint of Probation Officer. J. H. Witter, Chicago.
55 Relation of Feeble-Mindedness to Crime. H. H. Goddard, Vineland, N. J.

### Colorado Medicine, Denver

*April, XI, No. 4, pp. 145-178*

56 History of Medicine and Its Relation to Civilization. W. H. Crisp, Denver.
57 Recent Cases of Glandular Fever. H. B. Whitney, Denver.
58 Arrested Development of Cancer. G. A. Boyd, Colorado Springs.
59 Ludwig's Angina. T. J. Gallaher, Denver.
60 Traumatic Hysteria. E. Delehanty, Denver.
61 Present Status of Radium in Surgery and Medicine. W. W. Grant, Denver.

### Delaware State Medical Journal, Wilmington

*February, V, No. 3, pp. 1-26*

62 Obscure Case of Meningitis Following Grippe and Ending in Recovery. W. Springer, Wilmington.
63 Early Diagnosis in Cancer of Breast. H. M. Thompson, Wilmington.

### Journal of Kansas Medical Society, Kansas City

*April, XIV, No. 4, pp. 131-170*

64 Arteriosclerosis. L. F. Barney, Kansas City.
65 Upper Abdominal Diseases. R. C. Lowman, Kansas City.
66 What Is Solution of Cancer Problem? F. A. Harper, Pittsburg.
67 Abdominal Diagnosis and Roentgen Ray. E. H. Skinner, Kansas City.

### Maine Medical Association Journal, Portland

*April, IV, No. 9, pp. 1799-1840*

68 Neisser Infection of Female Genitals in Relation to Pregnancy. E. B. Young, Boston.
69 Case of Intermittent Claudication with Roentgenographic Findings. W. P. Coues, Boston.
70 Bronchopneumonia in Children. A. H. Damon, Limestone.
71 Pernicious Anemia. Case Report. J. M. Sturtevant, Portland.

### Medical Record, New York

*April 25, LXXXV, No. 17, pp. 737-782*

72 *Nutritive Significance of Different Kinds of Foodstuffs. L. B. Mendel, New Haven, Conn.
73 *Food from Standpoint of Energy. G. Lusk, New York.
74 *Results of Three Years' Clinical Work with New Antiserum for Cancer. W. N. Berkeley, New York.
75 Rôle of Exercise in Treatment of Visceroptosis, with Special Reference to System of W. Curtis Adams. S. S. Bradford, Montclair, N. J.
76 *Has Tuberculosis Death Rate Declined Recently? T. J. Mays, Philadelphia.
77 Comparative Study of Imaginative Powers in Mental Defectives. H. A. Knox, New York.
78 Recent Advances in Study of Pathogenesis of Cancer. M. J. Sittenfield, New York.
79 Value of Accurate Diagnosis in Disease. B. Robinson, New York.
80 *Tango-Foot. G. F. Boehme, Jr., New York.

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latter is turned away from the anterior chest wall; if two points with pulsation are found the one to the left represents the apex and the one to the right the base or the right ventricle.

While tachycardia and dyspnea of phthisis are usually due to toxemia of the disease, the cardiac displacements are also responsible to some extent. Many patients cured of tuberculosis remain with permanent cardiac embarrassment because of the displacement of the heart.

### Arizona Medical Journal, Phoenix

*April, 11, No. 3, pp. 5-36*

42 Functional Capacity of Kidney and Consideration of Quantitative Methods of Its Determination. J. I. Butler, Tucson.
43 Absence of Right Kidney. C. E. Yount, Prescott.
44 Artificial Pneumothorax in Pulmonary Tuberculosis. W. W. Watkins, Phoenix.
45 *Preparation of Nitrogen for Artificial Pneumothorax—Convenient Method. C. N. Boynton, Phoenix.

45. **Preparation of Nitrogen for Artificial Pneumothorax.**—Boynton uses ammonium nitrite, freshly prepared by mixing in solution pure sodium nitrite and pure ammonium chlorid. This forms, in solution, ammonium nitrite and sodium chlorid. The application of heat to the solution decomposes the ammonium nitrite into nitrogen gas and water. In the actual process, all glassware, rubber-tubing and water are sterilized in steam or by boiling before the apparatus is set up. The apparatus consists of a generating flask containing the two salts in solution, connected by rubber-tubing to a Wolff bottle in which the gas is washed through a solution of bichlorid of mercury. The gas then passes into a pressure flask in which it replaces the sterile water, forcing the latter into a sterile bottle, which constitutes the storage bottle for the water for the operation. The nitrogen obtained by this method is said to be 100 per cent. pure, absolutely sterile and more easily prepared. Twenty grams of the combined chemicals used in this method will yield four times the volume of nitrogen gas obtainable by the use of 150 grams of chemicals in the absorption method.

### Boston Medical and Surgical Journal

*April 23, CLXX, No. 17, pp. 637-672*

46 *Treatment of Cases of Mental Disorder in General Hospital. P. C. Knapp, Boston.
47 Medical Inspection of Immigrants at Port of Boston. A. J. Nute, Boston.
48 Ptosis—Cause of Gynecologic Failure. F. S. Kellogg, Boston.
49 Physiologic Cost of Insufficient Protective Clothing. G. W. Fitz, Boston.
50 Fracture of Clavicle. F. E. Peckham, Providence, R. I.

46. **Treatment of Mental Disorder in General Hospital.**—It is not practical in Knapp's opinion to receive and care for such patients in a general hospital unless there be a special service under the charge of a visiting neurologist familiar with mental diseases and their treatment. The average American internist is too ignorant of mental and nervous diseases to deal properly with such cases. Something more is requisite than restraint while in the hospital and commitment at the earliest opportunity. The visiting physician must be familiar with mental diseases, he must be able to make a sound prognosis as well as diagnosis, must know how the patient is likely to behave and be ready to assume risks and to take proper precautions. He must have the control of his patients and their treatment without interference from administrative officers, and must be alone responsible for the treatment, the stay in the hospital, restraint and commitment. Only under such conditions can the reception and treatment of cases of mental disorder in general hospitals be of full benefit to the patient and the community.

### Bulletin of American Academy of Medicine, Easton, Pa.

*April, XV, No. 2, pp. 65-118*

51 Social Factors Affecting Volume of Crime. J. L. Gillin, Madison, Wis.
52 Relation of Crime to Adolescence. W. S. Hall, Chicago.
53 Physical Basis of Criminality. C. R. Henderson, Chicago.
54 Physical Basis of Crime from Standpoint of Probation Officer. J. H. Witter, Chicago.
55 Relation of Feeble-Mindedness to Crime. H. H. Goddard, Vineland, N. J.

### Colorado Medicine, Denver

*April, XI, No. 4, pp. 145-178*

56 History of Medicine and Its Relation to Civilization. W. H. Crisp, Denver.
57 Recent Cases of Glandular Fever. H. B. Whitney, Denver.
58 Arrested Development of Cancer. G. A. Boyd, Colorado Springs.
59 Ludwig's Angina. T. J. Gallaher, Denver.
60 Traumatic Hysteria. E. Delehanty, Denver.
61 Present Status of Radium in Surgery and Medicine. W. W. Grant, Denver.

### Delaware State Medical Journal, Wilmington

*February, V, No. 3, pp. 1-26*

62 Obscure Case of Meningitis Following Grippe and Ending in Recovery. W. Springer, Wilmington.
63 Early Diagnosis in Cancer of Breast. H. M. Thompson, Wilmington.

### Journal of Kansas Medical Society, Kansas City

*April, XIV, No. 4, pp. 131-170*

64 Arteriosclerosis. L. F. Barney, Kansas City.
65 Upper Abdominal Diseases. R. C. Lowman, Kansas City.
66 What Is Solution of Cancer Problem? F. A. Harper, Pittsburg.
67 Abdominal Diagnosis and Roentgen Ray. E. H. Skinner, Kansas City.

### Maine Medical Association Journal, Portland

*April, IV, No. 9, pp. 1799-1840*

68 Neisser Infection of Female Genitals in Relation to Pregnancy. E. B. Young, Boston.
69 Case of Intermittent Claudication with Roentgenographic Findings. W. P. Coues, Boston.
70 Bronchopneumonia in Children. A. H. Damon, Limestone.
71 Pernicious Anemia. Case Report. J. M. Sturtevant, Portland.

### Medical Record, New York

*April 25, LXXXV, No. 17, pp. 737-782*

72 *Nutritive Significance of Different Kinds of Foodstuffs. L. B. Mendel, New Haven, Conn.
73 *Food from Standpoint of Energy. G. Lusk, New York.
74 *Results of Three Years' Clinical Work with New Antiserum for Cancer. W. N. Berkeley, New York.
75 Rôle of Exercise in Treatment of Visceroptosis, with Special Reference to System of W. Curtis Adams. S. S. Bradford, Montclair, N. J.
76 *Has Tuberculosis Death Rate Declined Recently? T. J. Mays, Philadelphia.
77 Comparative Study of Imaginative Powers in Mental Defectives. H. A. Knox, New York.
78 Recent Advances in Study of Pathogenesis of Cancer. M. J. Sittenfield, New York.
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### Ophthalmic Record, Chicago

*April, XXIII, No. 4, pp. 163-216*

94 Clinoscope as Guide to Operative Eye-Work. F. B. Eaton, Portland, Ore.
95 Operative Treatment of Muscular Imbalance. J. L. McCool, Portland, Ore.
96 Nature of Trachoma. W. H. Crisp, Denver.
97 Treatment of Trachoma. C. H. Dewey, Washington, D. C.
98 Sclero-Corneal Trephining as Taught by Elliot. E. Jackson, Denver.
99 Oculist as Interior Decorator. O. Wipper, Chicago.

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## FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

### British Medical Journal, London

*April 11, I, No. 2780, pp. 801-844*

1 *Three Years' Sanatorium Experience of Laryngeal Tuberculosis. S. Thomson.
2 *Tuberculin Treatment as Essential Method of Dispensing Sanatorium Benefit. W. C. Wilkinson.
3 Tuberculin as a Specific Cure. H. Sahli.
4 Tuberculosis of Kidney. J. M. Renton.
5 Surgery of Tuberculous Lymph-Nodes. A. Neve.
6 Multiple Subcutaneous Tuberculosis Following Circumcision Treated by Tuberculin. S. T. Champtaloup.
7 *Possibilities of Domiciliary Treatment in Phthisis. G. Jessel.

1. **Sanatorium Experience of Laryngeal Tuberculosis.**—More than half of the 178 cases of laryngeal tuberculosis treated by Thomson in the past three years—ninety-nine, in fact—were either arrested or improved during their stay. Thomson states that the larynx is frequently involved in pulmonary tuberculosis. Even in the selected cases sent to the sanatorium it is met with in 25.6 per cent. A considerable number of cases (102 out of 795) are sent to a sanatorium without their showing active tuberculosis. These cases, if included in statistics, would largely help to invalidate the foregoing conclusions. In patients of the middle class laryngeal tuberculosis may be met with as frequently in females (28.3 per cent.) as in males( 24 per cent.).

Laryngeal tuberculosis occurs more frequently (13.7 per cent.) in the early favorable cases of Group 1 than is generally recognized. In the more decided cases of Group 2 this proportion is doubled (27.1 per cent.), and in the advanced cases of Group 3 it is trebled (40.8 per cent.).

The expectation of life among consumptives is markedly decreased by the complication of laryngeal tuberculosis. As a factor in prognosis the laryngeal condition deserves much more regard than it has hitherto commanded. Laryngeal tuberculosis may not infrequently be present, although the patient may make no complaint of the throat, and although the voice be unaltered. Hence the larynx should be carefully inspected in every case of pulmonary tuberculosis. Improvement in lung and larynx frequently, but not necessarily, progresses *pari passu*. In certain cases the larynx improves, while the lung retrogrades. The converse rarely takes place. Arrest of laryngeal tuberculosis can be effected in a sanatorium in 20.7 per cent. of all cases. Limited and slight laryngeal lesions, particularly in Groups 1 and 2, may become arrested spontaneously with sanatorium treatment. The galvanocautery is the best weapon at present for local treatment. It was only indicated in 20.22 per cent. of 178 cases and it completed the cure in 41.60 per cent. of the cases in which it was employed. These satisfactory results have not, so far as Thomson knows, been secured by any methods outside a sanatorium.

2. **Tuberculin Treatment of Tuberculosis.**—Wilkinson has little doubt that when the effects of tuberculin treatment in stages 1 and 2 of pulmonary tuberculosis have been carefully and impartially studied this method of treatment will come to be adopted as the essential method of treating the disease itself, so that the custom in vogue of sending the victims of tuberculosis to sanatoriums will be largely superseded by treatment in special dispensaries.

7. **Domiciliary Treatment in Phthisis.**—Domiciliary treatment of tuberculosis Jessel says depends for its success on careful attention to details. The problem is essentially one of hygiene rather than of therapeutics.

### Dublin Journal of Medical Science

*April, III, No. 508, pp. 241-320*

8 *Case of Amyotonia Congenita. F. C. Purser.
9 Hypnotism. C. P. Smyly.
10 Case of Tuberculosis of Spine, with Pressure Symptoms on Cord. H. Stokes.

8. **Case of Amyotonia Congenita.**—The case cited by Purser differs from the majority of others described in the presence of nystagmus and the association with rickets. The patient was 2 years of age. The birth was natural, but there was severe post-partum hemorrhage. At the age of 15 months the child got severe diarrhea for four weeks. He became cross and restless. His belly swelled, and, later on, his chest got a queer shape. In fact, he had acute rickets.

The child made no attempt to stand, but he could sit up without support when he was helped into a sitting posture. If his body was bent forward he collapsed in a heap; if his head was bent backward or forward he had no power of getting it erect again. His spinal and abdominal muscles were fairly firm; they reacted briskly to faradic stimulation, and the abdominal reflexes were active. Swallowing, coughing and crying were vigorously performed. There was no sign of facial weakness. The limbs were extremely flabby and evenly small. All movements could be performed, but extension of the thigh was extremely feeble. The glutei were apparently the softest and feeblest of all his muscles. They contracted to faradic stimulation when it was strong. There were no polar changes. The movements of the arms were more frequent and of wider range and better than those of the legs. But they, too, were feeble, even when the child was angry. Occasionally a rhythmic tremor, about six or seven to the second, was seen in the arm used. There was extreme flaccidity and the joints were abnormally "loose." Purser says that this is the first case of the kind reported in Ireland.

### Edinburgh Medical Journal

*April, XII, No. 4, pp. 291-384*

11 Nature and Treatment of Neurasthenia. T. A. Ross.
12 Milk Question in Edinburgh. A. P. Mitchell.
13 *Scrofula, or Hypersensitiveness to Tuberculous Infection; Its Relation to Abnormal Constitution (Status Lymphaticus). C. M'Neil.
14 Modern Treatment of Pulmonary Tuberculosis. D. M. Barcroft.
15 *Manifestations and Treatment of Intestinal Toxemia. D. C. Watson.

13. **Scrofula.**—Scrofula in M'Neil's opinion is something more than a variety of tuberculous infection. It depends on an abnormal constitution in which the body shows a hypersensitive reaction to various infective agents, including tubercle bacilli in a majority of cases. This abnormal constitution is that usually known as status lymphaticus.

15. **Treatment of Intestinal Toxemia.**—The aim of treatment in every case is summarized by Watson as follows: 1. To correct the abnormal bacterial activity in the digestive tract, attention being directed both to the small and large intestine. 2. To correct any associated or, it may be, primary toxemia existing in the upper part of the digestive tract, more especially the teeth, tonsils, gums and stomach. 3. To increase the functional activity of the main channels of elimination of the natural poisons of the body which in the cases in question are usually produced in excess. 4. To raise the general tissue resistance of the body by general means, attention being specially directed to improving the tone of the central nervous system. 5. In appropriate cases endeavor to raise the resisting power of the tissues by the use of vaccine.

Complete rest in bed is essential in the treatment of the majority of pronounced cases. In slight cases rest is unnecessary and inadvisable. Great care is called for in the selection of cases requiring complete rest.

Diet is of great value in modifying the bacterial flora in the bowel. The fermentation cases should be treated with a diet chiefly protein in character. The diet should comprise various meat soups, fish, chicken, eggs, tripe, sweet-bread and scraped beef, farinaceous foods being restricted to dry toast, stale bread and rusks. The diet must be carefully planned, the food given at regular intervals and no food of any kind given between meals. The free use of plain water or other diluent should be encouraged. It is necessary to point out the importance of proper attention being paid to mastication of the food, to the state of the teeth and the careful regulation of the bowels, as essential points in the treatment. The putrefactive cases are treated with a partly vegetarian diet. Meat, and especially red meats, are for the time cut off from the dietary. Meat soups are similarly withheld. Eggs are also excluded. The diet should comprise bread and milk, farinaceous food, green vegetables and fruits. Patients who are specially prone to intestinal auto-intoxication have a relatively weak digestive power. Their diet must therefore be a simple one. All foods which are difficult to digest should be excluded from the dietary, and the various "extras" which can be indulged in with impunity by healthy subjects must be rigorously withheld.

In the mild cases all that is required for the bowels is a small dose of calomel—¼ to 1 grain each night for three or four nights—followed by a morning saline, given in amount sufficient to empty the bowel thoroughly, the bowels being thereafter regulated by adding a little fruit to the dietary, and by including, where possible, oatmeal, whole-wheat bread and vegetables, the drinking of plain water in the morning, and, when necessary, the regular use of such aperient as is found to suit the patient. The one Watson has found most generally useful is the old-fashioned senna pods used in the form of cold infusion. An enema of soap and water, the use of petroleum or liquid paraffin as a mechanical lubricant are recommended as being of value in many of these cases. An important point in the treatment consists in stimulating the functional activity of the kidneys. In the earlier stages of the disease hydrotherapeutic measures are of great value in treatment. Massage and exercise should be insisted on. The use of vaccines when carefully administered is of value in supplying the final stimulus required to enable Nature to overcome the effects of the poison. In cases which have proved intractable to medical treatment, and in which there is clear Roentgen-ray evidence of the existence of stasis, operation should be recommended.

### Journal of State Medicine, London

*April, XXII, No. 4, pp. 193-256*

16 Poliomyelitis. R. Burnet.
17 Sexual Disease and Individual. A. Corbett-Smith.
18 French Public Health Service in Equatorial Africa. Conan.
19 Residential Open-Air Schools. D. M. Taylor.

### Lancet, London

*April 11, I, No. 4728, pp. 1017-1094*

20 Morphology of External Genitalia of Mammals. F. W. Jones.
21 *Analysis of Problem of Minimal Lethal Dose and Its Relationship to Time Factor. G. Dreyer and E. W. A. Walker.
22 *Improved Methods of Standardizing Bacterial Vaccines in Hemocytometer Chambers. E. E. Glynn and Others.
23 Method of Increasing Accuracy and Delicacy of Wassermann Reaction. F. H. Thiele and D. Embleton.
24 Diabetic Retinitis. S. West.
25 Therapeutic Value of Potato. H. C. Howard.
26 Mortality on Rand: Some of Its Causes. B. G. Brock.

**21. Minimal Lethal Dose.**—The formula proposed by Dreyer and Walker is as follows: $\frac{1}{D_0 - a} - \frac{1}{D_1 - a} = k\,(T_0 - T_1)$ offers a simple means of making such measurements. In this formula $D_0$ and $D_1$ are the concentrations of the drug or "surface doses," corresponding to the time $T_0$ and $T_1$, in which the death of the animal (or other desired effect) occurs; a is a figure representing the "non-effective" dose of the substance employed, and k is a constant to be determined for the particular substance and species of animal under investigation. The formula states that to every equal increment in time there corresponds a definite decrease in the "active dose" (D — a). This formula is shown to afford a satisfactory expression for all the varied and diverse experimental data to which it has been applied.

**22. Standardizing Bacterial Vaccines.**—The most scientific method of enumerating the bacteria for vaccines is shown by Glynn and others to be in some form of hemocytometer chamber. An optically plane and rigid coverslip must be used with such apparatus, for it is recognized as essential when counting blood and is still more essential when counting bacteria, where accuracy is of greater importance. Owing to the small free working distance of oil immersion lenses most optically plane coverslips are too thick.

Two types of hemocytometer chamber may be employed: (a) The ordinary chamber 0.1 mm. deep, with an optically plane coverslip 0.13 mm. thick. This is suitable for all oil immersion lenses with a free working distance of 0.17 mm. and some of 0.15 mm. (b) A chamber 0.02 mm. deep, with a special safety trench 2.5 mm. wide and optically plane coverslip 0.18 mm. thick. This is suitable for all achromatic oil immersion lenses, even if the free working distance is as low as 0.09. The 0.02 mm. chamber is much superior for the following reasons: (a) Almost all the bacteria settle at the bottom in fifteen minutes, when accurate counts can be made, whereas in the 0.1 mm. chamber a considerable number are still moving after half an hour. (b) Bacteria adhering to the under surface of the coverslip or still floating in the chamber are more easily enumerated. (c) The optical definition of the bacteria is better owing to the smaller quantity of fluid. (d) The free working distance is greater, and the coverslip being 0.18 mm. thick, is more durable. (e) Counting is quicker owing to the much smaller number of moving bacteria and the greater ease in focusing the top and bottom of the chamber.

A weak solution of carbol thionin is the best diluting and staining fluid; unlike a weak solution of Giemsa it is quite free from precipitate and stains more intensely. Enumeration of stained bacteria in a hemocytometer chamber, particularly in one 0.02 mm. deep, is more rapid and much more accurate than by Wright's method. The hemocytometer method does not underestimate the strength of the bacterial emulsion as usually happens with Wright's method, sometimes to a very serious extent.

### Annales de Gynécologie et d'Obstétrique, Paris

*March, XLI, No. 3, pp. 129-192*

27 Treatment of Ophthalmia Neonatorum. V. Morax.
28 *Transfusion of Blood to Supplement Hysterectomy for Rupture of the Uterus. C. Sauvage.
29 Breech Presentation. (L'extraction du siège d'après Deventer-Mueller.) R. de Trey.
30 Cesarean Section; Twelve Cases. Ferré.

**28. Transfusion of Blood After Removal of Uterus Ruptured During Delivery.**—Sauvage relates the particulars of a case in which he combated the shock from the rupture, the great loss of blood and from the hysterectomy by transfusion of blood from the woman's husband. In three minutes after the transfusion was begun the radial pulse began to appear and rapid and complete convalescence followed.

### Annales de Médecine et Chirurgie Infantiles, Paris

*April 1, XVIII, No. 7, pp. 213-248*

31 Acute Appendicitis in the Course of Varicella; Three Cases. E. Périer.
32 Tic of the Scapula. Nageotte-Wilbouchewitch.
33 Suture of Ulnar Nerve. (Section du nerf cubital chez un enfant. Suture.) P. Lombard.
34 *Acute Nephritis in Children. J. Renault and G. Siguret.

**34. Acute Nephritis in Children.**—Renault and Siguret think that bed rest and an exclusive milk diet are all that is needed in mild cases. When symptoms develop showing that the kidneys are becoming less permeable to salt and urea, diuresis should be promoted and the congestion in the kidney reduced by dry cupping, repeatedly applied, in Petit's triangle. In the severer cases and with older children venesection is sometimes preferable, or wet cupping in the lumbar region or leeches to each kidney. Moist heat to the chest is often effectual in relieving congestion of the kidneys; it is left in place for fifteen or twenty minutes, repeated every three or four hours. They advise against revulsion by mustard pastes, etc., but have often found useful in the threatening cases a full bath at 38 C. for fifteen minutes when there were no contra-indications on the part of the heart. A wet cloth should be kept on the head during the bath.

Drugs to act on the kidneys are too much of a strain for them; diuresis is best promoted by reducing intake of salt and of water. If this is not enough, a cold enema might be given every hour, and decoctions of onions, cherry stalks, or grape juice in small quantities, are often useful adjuvants. Calcium chlorid may help; 0.2 gm. a day for each year of age, but if it does not benefit promptly it should be dropped after a few days. Nothing but sugars can be given to promote elimination of nitrogen, they say, suggesting 10 to 50 gm. of lactose in the beverages during the day. Also subcutaneous or intravenous injection of 200 or 250 c.c. of a 45 per thousand solution of glucose. The bowels and the skin should be stimulated, but they say that calomel and pilocarpin are directly contra-indicated.

Nothing but water and little of that should be allowed the first two days, then unsalted gruels, gradually adding a little milk, finally giving nothing but milk, and no more than 1.5 liter in the twenty-four hours, and always warm, sweetened or not as desired, fractioned every three hours from 8 a. m. to 8 p. m. The mouth should be rinsed out afterward with an alkaline fluid each time. After a time other food can be added but always without salt and with minimal nitrogen. If there is no sign of edema by the end of a month, a little salt can be allowed. Other important elements in treatment are repose in bed, constant warmth and scrupulous disinfection of the throat and nose every day. In case of convulsions lumbar puncture may prove useful.

### Archives de Médecine des Enfants, Paris

*April, XVII, No. 4, pp. 241-320*

35 Necessity for Removing Infant at Birth from Tuberculous Familial Environment. P. Nobécourt and G. Schreiber.
36 *Acute Leukemia in Children. M. Péhu and G. Chalier.
37 *Recurrence of Scarlet Fever. G. Jacobson.
38 Child Welfare Work in Brazil. (Protection de l'enfance au Brésil.) Moncorvo, Jr.
39 Children's Asylum at Stockholm. E. Lesné and C. Richet, Jr.
40 Varicella Contracted at Birth from the Mother. P. Lereboullet and I. Moricand.
41 Spastic Paraplegia in Boy of 8 with Inherited Syphilis. Deléarde and Cantrainne.

36. **Acute Leukemia in Young Children.**—The blood-picture in the girl of 3 and boy of 2 was not of the classic type in either, but the general health became bad and the spleen much enlarged. Toward the end ascites and edema developed and the liver became enlarged while there was suppuration in one tonsil in the first case but no hemorrhages nor enlargement of lymph-nodes. The girl died in less than three months after the first symptoms; the disease in this case might be defined as a myeloid subleukemia with rapid course. The boy presented typical acute leukemia and had no hemorrhage nor fever to speak of, but the edema was extreme, invading the face and legs; probably pressure from the numerous enlarged lymph-nodes contributed to this; the spleen was also very much enlarged; death occurred in four months. The blood-count indicated an intense myeloid reaction and the eosinophils numbered 25 per cent. The case had features which suggested that it was a transitional form between true and pseudoleukemia. Arsenic was given the children and several Roentgen-ray sittings; the spleen became somewhat smaller, but the results on the whole confirmed the inefficacy of all our measures for treatment of acute leukemia. The first symptoms in the first case were the increasing size of the abdomen; the child seemed to suffer from it and was pale and languid. In the other case the enlargement of the lymph-nodes in the neck, pallor and loss of appetite were the only symptoms noticed by the family for three or four weeks.

37. **Recurrence of Scarlet Fever.**—Jacobson reports that a family of four children had scarlet fever in 1908 and 1911. Over a year later he was called to attend the children for scarlet fever anew, each one of the four having a typical attack. The second attack was more serious than the first in all, and the 8-year-old girl died from it with signs of myocarditis.

### Archives Générales de Chirurgie, Paris

*March, VIII, No. 3, pp. 257-384*

42 Congenital Fistula of Upper Lip. A. Parcelier and A. Lacoste.
43 *Grafts to Close Defects in Skull. (Greffes craniennes.) P. Mauclaire.

43. **Skull Grafts.**—Mauclaire reviews the various methods in vogue for repairing defects in the skull and then gives the details of two cases of traumatic injury and one of congenital occipital meningocele. In the first traumatic case the gap was 5 cm. in each direction, with considerable protrusion of brain tissue. He implanted a flap of fascia and on top of this the lower corner of the scapula. The bone implant did not close the defect entirely and a fistula developed. The traumatic brain tissue hernia was improved by the operation, as the fascia flap held, but the cure was not complete. In the second traumatic case he implanted a flap of fascia lata which healed well in place but Jacksonian epilepsy developed and he incised the implanted fascia lata and found subjacent adhesions to the meninges which he separated and implanted a sheet of tissue cut from the hernial sac of another patient known to be healthy. He then sliced from the patient's tubercle of the ilium a sheet of bone and periosteum which fitted perfectly in the gap, after freshening the edges. The injury had been from a gunshot wound in the temporal region. The graft healed in place and after the fourth day following the intervention the patient had no further traces of epilepsy. The tubercle of the ilium seems particularly adapted for grafts as five or six flat or curved sheets of bone-tissue can be sliced from it without injuring the sacroiliac articulation. By cutting slices on each side enough bone might thus be obtained to repair a defect as large as the palm of one's hand. Mauclaire thinks that bone grafts are preferable to any other material for the purpose. In this case of meningocele he obtained the bone and cartilage graft from the child's greater trochanter.

### Bulletin de l'Académie de Médecine, Paris

*March 24, LXXVIII, No. 12, pp. 415-489*

44 *Importers of Tropical Germs. L. Landouzy and R. Debré.
45 Chemistry of the Urine in Cancer. (L'acide urique et les corps puriques chez les cancéreux.) A. Robin.
46 *Congestion of the Peritoneum. (Congestion péritonéale d'origine appendiculaire.) Mignon.
47 *Experimental and Therapeutic Study of Emetin. E. Maurel.

44 and 46. Summarized in Paris Letter, p. 1267.

47. **Emetin.**—Maurel remarks that thirty communications have been recently published bearing on emetin hydrochlorid in treatment of dysentery, ameba liver disease, and hemorrhages from the intestines, stomach or lungs. These results confirm his experimental research with it long ago undertaken to confirm C. Bernard's laws that toxic and medicinal substances act, not on organs, but on systems of tissue; that each has one elective anatomic element; and that this electivity is manifested throughout the animal series. Emetin acts electively on the smooth fibers, and particularly on those in the blood-vessels, causing them to contract. This contraction explains the influence of emetin on hemorrhage as it induces vasoconstriction. The contraction of the smooth fibers under the action of emetin helps to reduce congestion and inflammation in a region. In all cases of local congestion the contraction of the vessels aids in restoring normal conditions especially in bronchitis, pneumonia, emphysema, etc.

### Bulletins de la Société de Pédiatrie, Paris

*March, XVI, No. 3, pp. 117-196*

48 *Experimental Research on Dietary Deficiency Diseases. (Note pour servir à l'étude des troubles provoqués par une alimentation exclusive.) E. Weill and G. Mouriquand.
49 Tic of the Scapula. (Surélévation de l'omoplate gauche. Tic d'attitude ou tic tonique.) L. Lamy.
50 *Danger of Injections of Witte Peptone in Familial Hemophilia. P. Lereboullet and E. Vaucher.
51 *Foreign Bodies in Upper Air Passages of Young Children. M. Guisez.
52 Wassermann Reaction in Infant's Blood; Negative in the Mother. Cassoute.
53 Gangrene of the Foot in Diphtheria. V. Veau and Weber.
54 Diagnosis of Pericarditis with Effusion. Guinon and Malarte.

48. **Dietary Deficiency Disturbances.**—Weil and Mouriquand have been feeding a number of pigeons since last July exclusively on one kind of grain, rice, barley, wheat or corn, comparing the condition of these pigeons with that of others on an ordinary pigeon diet. Those fed on polished rice

developed typical beriberi and almost identical disturbances were displayed by the pigeons fed exclusively on barley. They think that everything tends to show that the trouble is due more to the exclusive, one-sided diet than to any special toxic element, and that the facts observed throw light on the pallor, weakness and dyspepsia in infants fed too exclusively with any one substance.

50. **Danger from Peptone Treatment of Hemophilia.**—Nolf and others have reported that the coagulating time was materially shortened in a number of cases of hemophilia in which Witte peptone had been injected into a vein. Encouraged by this, Lereboullet and Vaucher applied the same measure to a child of 7 with severe familial hemophilia. The injections were borne at first without by-effects, but then symptoms of serious intolerance followed, with profuse hemorrhages, speedily fatal.

51. **Foreign Bodies in Esophagus or Air Passages of Young Children.**—Guisez reports eleven cases and insists on the difficulty of determining whether the foreign body is in the gullet or windpipe, spasm of the glottis frequently complicating the picture. This occurred in three of his cases when the foreign body was in the esophagus. The children coughed and seemed to be suffocating, and tracheotomy was done in one case. The safety-pin was not found and it was voided later with the stools. The dyspnea and cough at first are instructive; later the air passages may become tolerant of the foreign bodies. He is convinced that many children die from the effects of an unsuspected aspirated foreign body when the trouble is supposed to be ordinary bronchitis or pneumonia. In one case a child coughed up a fish scale which had been the unsuspected cause of a four-months' siege of bronchitis. In another case the nurse knew that the child had swallowed a foreign body and coughed incessantly for a time, but it was assumed that the foreign body would be expelled by the bowels and no one connected it with a pulmonary trouble which developed soon after. Several physicians examined the child and tuberculosis was suspected, but at the eighteenth month the child coughed up the foreign body and its lung trouble ceased at once.

The family always say that the child has "swallowed" the foreign body, but if there was any immediate suffocation this should suggest its presence in the windpipe rather than the gullet, especially when there was a spasmodic cough and attacks of suffocation recurred at first. The witnesses of the accident are liable to push the foreign body farther down, past the glottis, in their efforts to extricate it. Guisez took a penknife from the bronchus in one case and a bone in another; the foreign bodies had lodged in the throat and as a member of the family tried to seize the foreign body with his finger, he pushed it past the glottis. In only 50 per cent. of his total fifty-two cases of foreign bodies in the air passages were the Roentgen-ray findings reliable. Only metal bodies or bone cast a shadow, and the foreign body may change its place at each cough. His youngest patient was 3 months old. Broncho-esophagoscopy has materially reduced the mortality and will still further reduce it as it is more widely used and the technic perfected. Köhler's statistics up to 1910 gave a mortality of 90 per cent., but Jackson reported last year a mortality of only 5 per cent. in 171 cases.

### Journal de Chirurgie, Paris

*March, XII, No. 3, pp. 281-424*

55 *Technical Point in Removal of Rectum by Abdomino-Perineal Route. B. Cuneo.
56 *Traumatic Fat Embolism. J. Tanton.
57 Exclusion of Pylorus by Biondi's Technic. S. Porta.

55. **Removal of the Rectum.**—Cuneo shows by diagrams that ligation of the inferior mesenteric artery as high as possible materially facilitates drawing down the rectum to the incision in the perineum, while it seems to be entirely feasible and harmless. He has done this operation ten times. In five cases he made an abdominal artificial anus and three of the patients died. In the other five cases he fastened the bowel to the anus or just back of it, and all in this group recovered.

56. **Traumatic Fat Embolism.**—Tanton reviews the history of this subject, the pathogenesis of fat embolism, symptoms and treatment. The diagnosis is based on the dyspnea, rise in temperature, brain disturbances and the lipuria, but these symptoms are seldom all present. Roux thinks that a retarded pulse with accelerated respiration speak strongly in favor of fat embolism. Benestad noticed small purplish spots on the skin of the shoulders, chest, abdomen or front of the thighs in his five cases of fat embolism after fracture, and others have noticed these petechiae on the mucosa and conjunctiva. Fat embolism in the lungs might be mistaken for pneumonia, and in the brain might be ascribed to shock or pressure on the brain from a hemorrhage. The symptoms are seldom fulminating as is liable with blood embolism; as a rule in the fatal cases death does not occur for five or six hours, or days may elapse. The fat embolism may not develop until some time after the fracture—two weeks in Groubé's case. As there is so little that can be done in treatment of fat embolism, measures to ward it off are particularly imperative and chief among these the search for atrophy of the bone when it is a question of correcting an ankylosed joint. Roentgenoscopy will reveal whether there is atrophy of the bone at any point in the skeleton. If such is found the reduction of the stiff joint should be done very slowly and gradually, avoiding any sudden crushing of the bone. It is important not to treat more than one joint at a time, and also to do the correction before the bone has developed fatty osteoporosis. Immobilization of the fracture is a further factor in prophylaxis; the urine should be examined for fat every day, especially after a severe fracture.

In case of lipuria and trouble in breathing, he advises opening the fracture and removing the blood and fat accumulated there, hoping thus to arrest or reduce the absorption of fat. Wilms and Gröndahl regard the thoracic duct as the main source of absorption for the fat and suggest that a temporary fistula might divert the fat away from the circulation exposing the thoracic duct in the subclavicular fossa and inserting in it a cannula, left in place for one or three days. Wilms has reported a case in which he successfully applied this measure; the patient had developed subcoma twenty hours after fracture of the radius, with difficulty in breathing, and Wilms made an incision into the thoracic duct. Lymph poured out in abundance, containing numerous droplets of fat easily distinguishable from the granules of fat in the chyle. He kept the fistula open for four days when the condition improved and complete recovery soon followed. The fistula healed spontaneously in eight or ten days. For this operation to be effectual, the fat embolism must be diagnosed early and positively, which is rarely the case; the dyspnea, rise in temperature and brain disturbances are generally attributed to other causes.

### Journal de Médecine de Bordeaux

*March 22, LXXXV, No. 12, pp. 189-202*

58 Electricity in Treatment of Deranged Metabolism. (L'ergothérapie passive par la faradisation généralisée. E. Spéder.

*March 29, No. 13, pp. 205-226*

59 Direct Connection between Certain Parts of the Liver and of the Intestinal Tract. (Sur les rapports fonctionnels des formations lobaires hépatiques et des divers segments du tube gastro-intestinal. Leur rôle en pathologie.) P. Mauriac and H. Sérégé.

### Journal d'Urologie, Paris

*March 15, V, No. 3, pp. 249-392*

60 True Pathologic-Anatomic Findings in the Kidneys. (L'histopathologie fine du rein chez l'homme.) M. Chevassu and F. Rathery.
61 Subcapsular Nephrectomy; Three Cases. R. Molla.
62 *Nascent Iodin Fumes in Treatment of Tuberculous Processes in the Bladder. (L'enfumage iodé.) J. N. Normand.
63 Cure of Inoperable Urethrovaginal Cancer in Woman of 26 under Radium; No Recurrence for Two Years to Date. F. Legueu and Chéron.
64 Indications and Technic for the Transvesical Operative Treatment of Vesicovaginal Fistulas; Six Cases. J. Paris and F. Francey.

62. **Nascent Iodin Fumes in Treatment of Tuberculous Process in the Bladder.**—The Journal described, 1912, LIX, 488, with an illustration, the method of generating nascent iodin by gently heating iodoform and pumping the fumes directly into the organ or passage requiring treatment. Nor-

mand here relates his experiences with the method in twenty-four cases last year, with a total of 114 sittings or *enfumages.* During the current year he has applied it to 16 other patients, with 116 sittings. He regards the method as indicated in all primary or secondary tuberculous bladder affections except during acute exacerbations. He declares that the method is superior to all others for this purpose; it improves and soothes and seems harmless. The capacity of the bladder increased in about 50 per cent. of the cases, but incontinence did not show any improvement. In the majority of the cases the benefit was prompt and striking. The bladder need not be rinsed out beforehand unless it is much contaminated, and only plain boiled water should be used. About 0.05 or 0.1 c.c. of the iodoform is heated, and when the violet fumes issue from the tip of the cannula the alcohol lamp is set aside and the fumes are pumped into the bladder, stopping when the patient shows signs of pain or a desire to urinate. The fumes are retained in the bladder for from half a minute to two minutes. The sittings are given once or twice a week. The heat must be gentle, and if the iodoform is impure or impaired by exposure to the air or moisture, the nascent iodin vapor is correspondingly unreliable.

### Presse Médicale, Paris

*April 4, XXII, No. 27, pp. 253-264*

65 *Advantages of Tansini's Technic for Amputation of the Breast for Cancer. M. Guibé.
66 Local Anesthesia for Phimosis Operation. M. Saissi.

65. **Amputation of the Breast.**—The last communication from Tansini on his technic for radical removal of the cancerous breast was summarized in these columns Dec. 13, 1913, p. 2202. Guibé here gives an illustrated description of it and says that experience is showing that the objections theoretically raised against the method are proving baseless in practical experience. It aims to remove the skin in the region more thoroughly and extensively than other technics, at the same time supplying an adequate substitute by twisting a skin flap around from the back.

### Semaine Médicale, Paris

*April 8, XXXIV, No. 14, pp. 157-168*

67 Fracture of the Scaphoid Bone. (Les fractures du scaphoide tarsien.) F. Lejars.

### Beiträge zur klinischen Chirurgie, Tübingen

*February, LXXXIX, Nos. 2-3, pp. 291-708*

68 *Treatment of Diffuse Suppurative Peritonitis. J. Grekow.
69 *Operative Treatment of Traumatic Injury of the Heart. (Zur Frage der traumatischen Herzchirurgie.) H. Zeidler.
70 The Streptococcus Group and Vaccine Therapy. A. Berdnikoff.
71 Serotherapy and Vaccine Therapy in Surgical Gonorrheal Disease. B. Cholzoff and T. Gramenitzky.
72 Pathologic Anatomy and Histology of Suture of Veins. E. Hesse and W. Schaack.
73 Technic for End-to-Side Anastomosis of Vessels. N. Dobrowolskaja.
74 Traumatic Separation of the Epiphysis. E. Klopfer.
75 Salvarsan Therapy in Surgery. G. Iwaschenzoff and W. Lange.
76 Fascia Flap to Close Defect in Dura. W. Lawroff.
77 Roentgen-Ray Diagnosis of Suppurative Processes in the Thorax. O. v. Dehn.
78 Wounds of the Abdomen. (301 perforierende Stichverletzungen des Abdomens, 1902-1912.) M. Magula.
79 Experimental Study of Best Treatment for Peritonitis. F. Pikin.
80 Paratyphoid Peritonitis. G. Petraschewskaja.
81 Treatment of Appendicitic Peritonitis. N. Boljarski.
82 Treatment of Perforated Gastric and Duodenal Ulcer. G. Petraschewskaja.
83 Experimental Study of Compensatory Phenomena after Resection of Intestine. B. Stassoff.
84 Injuries of the Liver; 109 Cases. N. Boljarski.
85 Experimental Study of Digestion and Absorption of Different Foodstuffs with Abnormal Admixture with Bile in the Digestive Apparatus. H. Wiedemann.
86 Experimental Transplantation of the Papilla of Vater. H. Wiedemann.
87 Stab Wounds of the Gall-Bladder. (Stichverletzungen der Gallenblase.) H. Wiedemann.
88 Frequency of Gall-Stones among 17,402 Cadavers. E. and M. Hesse.
89 Technic for Repair after Stab Wound of the Spleen. (Zur Chirurgie der Milzstichverletzungen unter bes. Berücksichtigung der isolierten Netztransplantation.) B. Stassoff.
90 Tests of Functional Capacity with Surgical Disease of the Kidney. S. Liokumowitsch.
91 Treatment of Rupture of Kidney from Contusion; Fifty-Seven Cases. S. Ponomareff.
92 Intraperitoneal Rupture of the Bladder. N. Dobrowolskaja and H. Wiedemann.

68. **Suppurative Peritonitis.**—All the twenty-five communications in this double number of the Beiträge are from the great Obuchow hospital at St. Petersburg. Grekow, the chief of the surgical service, opens the list with an analysis of 902 operative cases of diffuse peritonitis during the last twenty years. The mortality varied according to the cause, but it averaged 63.3 per cent. He never witnessed any benefit from pouring oil, with or without camphor, into the abdominal cavity but was quite encouraged by the stimulating action of 500 c.c. of a 5 per cent. solution of grape sugar which was poured into the abdominal cavity and allowed to drain away. A hypertonic salt solution answers the same purpose; both induce copious secretion in the abdominal cavity and thus cause an autoflushing of the peritoneum, as is were, while it renders the pus more fluid. Oil, on the other hand, seemed to favor adhesions and mischief generally. No benefit was observed from vaccine or serotherapy, but a certain favorable influence was apparent after intravenous injection of a 0.1 per thousand solution of silver nitrate. The high mortality in his material was due to the late stage in which the patients were first seen as a rule.

69. **Operative Treatment of Wounds of the Heart.**—Zeidler states that nine of the thirty-one patients recovered after suture of the heart at the Obuchow hospital. He thinks this is the longest series of such cases yet reported from any one institution. A number of the patients have full earning capacity to date, from two to over seven years since the operation. He describes the usual technic in detail and ascribes the fine outcome in some cases to his prophylactic resection of part of the chest wall—cardiolysis—to prevent adhesions and the rigid wall hampering the work of the heart.

### Berliner klinische Wochenschrift

*April 6, LI, No. 14, pp. 629-676*

93 Headache and the Eyes. (Kopfschmerz und Auge.) A. Jess.
94 Squint and Headache. (Hohenschielen und Stirnkopfschmerz.) E. A. Heimann.
95 *Nutrient Enemas after Operations on Stomach and Esophagus. (Rectalernährung nach Operationen im Munde und im Schlunde.) G. D'Agata.
96 *The Prognosis for General Anesthesia. W. Stange.

95. **Nutrient Enemas.**—D'Agata states that in Ceci's surgical service at Pisa there has been no instance of aspiration pneumonia during the five years since operations on the mouth or esophagus have been systematically done under local anesthesia or as the patient is recovering from general anesthesia, the head pendant. The patient is then kept in bed, sitting up, for twenty-four hours, and gets up the next day. For a period of ten to fourteen days nourishment is given exclusively by way of the rectum. This latter precaution is chiefly responsible, he thinks, for the freedom from postoperative foreign body pneumonia; the patients do not seem to suffer materially from inadequate nourishment during these two weeks. He gives the metabolic findings in two of the patients to sustain these assertions and demonstrate the absorption and assimilation of nutrient materials from the rectum, and the comparatively small amount rejected and cast off in the stools. The absorption of carbohydrates was approximately normal; less good of nitrogenous substances and least of all of fat.

96. **Prognosis for General Anesthesia.**—This article was summarized as it appeared elsewhere. (See abstract 158, p. 1132.)

### Correspondenz-Blatt für Schweizer Aerzte, Basel

*March 21, XLIV, No. 12, pp. 353-384*

97 *Paracelsus in Switzerland. A. Burckhardt.

*March 28, No. 13, pp. 385-416*

98 Hour-Glass Stomach. (Sanduhrmagen nach Ulcus der kleinen Kurvatur.) L. Gelpke.

*April 4, No. 14, pp. 417-448*

99 Pernicious Anemia and Uncontrollable Vomiting Cured by Induction of Abortion; One Case Each. A. Goenner.

97. **Paracelsus.**—Burckhardt has recently found among the archives of the university of Basel, Switzerland, records of Paracelsus having been a professor and city physician there during 1527 and at an unusually high salary for those days. But the faculty refused to accept him as a regular member

and he was never given license to practice there. No record has been found anywhere of his having actually completed his medical course, although he had studied at various medical schools and done surgical service on the battlefield.

### Deutsche medizinische Wochenschrift, Berlin

*April 2, XL, No. 14, pp. 681-736*

100 *Treatment of Incarceration of Pregnant Uterus. P. Jung.
101 *Resection of Ribs Close to Spine and Sternum as Means to Cure Old Processes in the Lungs and Pleura. (Behandlung der Empyeme und der lange bestehenden tuberkulosen Pleuraexsudate mit der Pfeilerresektion.) M. Wilms.
102 *Paravertebral Hypostatic Pneumonia in Infants. A. Czerny.
103 *Bacteriologic Findings with Friedmann's Remedy. (Beitrag zur bakteriologischen Kenntnis des Friedmannschen Tuberkulosemittels.) L. Rabinowitsch.
104 History and Technic of Radiology of Duodenum. O. David.
105 Influence of Splenectomy on Pernicious Anemia. A. v. Decastello. Commenced in No. 13.
106 The Spirochetes in the Brain in General Paresis. (Spirochäte des Paralytikergehirns.) E. Forster and E. Tomasczewski.
107 Delivery with a Slanting Pelvis. (Geburt bei schiefem Becken.) R. Jolly.
108 *Orthopedic Substitute After Resection of Ribs. (Orthopädischer Ersatz einer grossen Rippenlucke.) H. v. Baeyer.
109 *Treatment of Congenital Dislocation of the Hip Joint. (Angeborene Hüftgelenksverrenkung.) Gaugele.
110 *Revival of the Asphyxiated Newly-Born. (Behandlung des Scheintodes bei Neugeborenen.) C. Sakaki.
111 *Necessity for Facilities for Research on the Laws of Heredity. (Organisation und Aufgaben eines Reichsinstitutes für Familienforschung und Vererbungslehre.) R. Sommer.

100. **Incarceration of Gravid Uterus.**—Jung warns that no attempt should be made to straighten the uterus until after the bladder has been emptied. If it proves impossible to introduce a catheter, we must not hesitate to puncture the bladder above the symphysis. The rectum must also be cleared out. Then the uterus must be straightened; it helps sometimes to draw down the cervix with forceps to leave more room above. The knee-chest position may help or general anesthesia may be necessary. During this it may be possible to break up adhesions. Once corrected, a pessary should always be introduced to keep things in place, removing it at the fifth month. If no pessary that fits is at hand the patient should lie on her side until one can be obtained. Morphin may also aid in quieting the uterus and warding off danger of abortion from maneuvers. Gangrene of the bladder is always extremely serious; after recovery the bladder generally shrivels and entails great suffering. Incarceration of the gravid uterus is liable to recur and women who have once had it should be warned to seek medical aid at once at a new pregnancy. The best plan is to shorten the ligaments after the puerperium to prevent recurrence later.

101. **Operative Treatment of Empyema.**—Wilms relates a number of instances in which his method of resection of ribs close to the spine and sternum, causing the chest wall to fall in, closed up cavities and led to the prompt healing of old tuberculous pleural effusions and empyemas. No loss of muscle functioning followed. This technic is peculiarly advantageous for old tuberculous processes and it does not expose them to secondary infection as with other technics. The resection can be done at several sittings, and it may be necessary to resect from the eleventh to the first ribs close to the spine, and eventually from the first to the seventh ribs close to the sternum. He thinks that the increasing application of artificial pneumothorax is bound to increase the numbers of empyemas, as an effusion is common after it and this effusion is liable to become infected or the lung be unable to expand from compression by it. In such cases he declares that his technic offers the best prospects of success.

102. **Pneumonia in Infants**—Czerny calls attention to the marked decrease in the number of cases of what he calls hypostatic paravertebral pneumonia. This is the more remarkable as bronchitis and other forms of pneumonia show no decrease in frequency. He explains it by the progress realized in recent years in infant feeding, so that the diaphragm is neither pushed up by meteorism nor allowed to sag unduly by abnormally low intra-abdominal pressure. As the diaphragm behaves normally there is no occasion for the paravertebral hypostatic conditions to develop which are liable to entail complications on the part of the lungs.

103. **Bacteriology of Friedmann's Remedy.**—Summarized in the Berlin Letter, April 25, p. 1343.

108. **Orthopedic Appliance for Defect in Ribs.**—Baeyer's patient was a man whose lung was unable to expand on account of the sinking in of the chest wall where all the ribs had been cut out five years before on account of empyema. His dyspnea was extreme at the slightest exertion. A solid pad was made to extend from the axilla to the waist covered with soft kid and fitting tight to the chest wall during expiration. This prevented the chest wall from sinking in during inspiration, and all trouble was at an end at once. The article is illustrated.

109. **Congenital Dislocation of the Hip-Joint.**—Gaugele says that he has never had a failure since he has laid special stress on adapting the after-treatment to the rigidity of the joint, and aiming to make it the artificial prolongation of spontaneous correction, always bearing in mind that the *shriveling of the capsule is what holds the head in place*; the acetabulum does not grow any deeper. He gives an illustrated description of the pelvis and thigh appliance with which he accomplishes this, adjusting it himself from time to time under control of the Roentgen rays. In two and a half years to date the head has not slipped out of place in any of the fifty-two children thus treated.

110. **Asphyxia of the New Born.**—Sakaki recalls that an air pump works much less powerfully when the piston is pushed in slowly, and he deduces from this that the ordinary measures to revive the newly born are less effectual than they might be if a faster tempo were used. Another fact to which he calls attention is that if considerable water is poured on a capillary pipet, air bubbles form and very little water gets into the pipet unless it is well shaken. On these premises he applies a method of reviving the asphyxiated newly born which has never failed him in long years of experience. He holds the child facing him, with his forefingers in the child's axillae, entering from the back. His thumbs meet on the front of the child's throat and prevent its head drooping too far forward. The other three fingers of each hand are applied to the back of the chest. The child thus held firmly with its arms flexed and pressed against its sides, is shaken from the wrists, not hard but rapidly, 120 to 150 times a minute. In a few seconds the air can be heard entering the child's air passages. Then the child is suspended by the feet and the mucus runs out of its mouth and nose. After a few seconds the whole procedure is repeated, unless the child has begun to breathe naturally. Sakaki says that it is simple and easy and can be done before the umbilical cord is cut, and that it is the only way to get air into passages clogged with secretions. The objection that foreign-body pneumonia may be brought on by the procedure, he meets with the assertion that it is better to have a living child, even if it has to be carried through pneumonia later, than a dead child free from pneumonia.

111. **Research on Heredity.**—Sommer comments on the ever increasing sociologic importance of psychiatry and urges that provisions should be made to collect data in regard to forensic psychiatry and the laws of heredity. He suggests that the public health service for the German empire should have some section devoted to these subjects and to psychic hygiene in the widest sense, or a central institution might be founded for the purpose. Among the questions to be thus studied are the effects of intermarriage between blood relations; the regeneration in later generations of inherited morbid properties; congenital feeble-mindedness; connection between the tuberculous taint or syphilis in certain families and constitutional inferiority and degeneracy, with allied questions which can be solved only by industriously compiling and comparing extensive data on these subjects. He has got out a question blank for study of the heredity after intermarriage between blood relations and offers to send it to those who will help in compiling data in this line; address Prof. R. Sommer, Giessen. (A news item in our exchange states that an experiment station for study of heredity in plants and animals will soon be opened at Berlin in connection with the Agricultural College.)

### Deutsche Zeitschrift für Chirurgie, Leipsic

*March, CXXVII, Nos. 3-4, pp. 209-414*

112 Surgical Anatomy of the Exterior of the Base of the Skull. (Basis cranii externa.) A. W. Starkoff.
113 *Experiences at the Balkan Wars. (Kriegschirurgische Erfahrungen 1912-1913.) A. Dilger and A. W. Meyer.
114 Angiosclerotic Changes in the Bones. (Eine noch wenig bekannte angiosklerotische Knochenveränderung.) A. Serra.
115 Experimental Research on Chronic Granulating Osteomyelitis. F. Rost.
116 Cysts in the External Ear. (Knorpelcysten der Ohrmuschel.) Junkel.

113. **From the Balkan Wars.**—Dilger and Meyer here review their experiences on the battlefield, their 154-page report being profusely illustrated. They noticed that small bullet wounds healed as a rule without infection, regardless of whether they were dressed or not, while extensive injuries usually became infected even when the first-aid dressing had been faultlessly applied. They insist that it is far more important to apply measures for immediate fixation of fractures than to waste time dressing small wounds. With a gunshot fracture the bleeding generally stops as soon as the fracture is splinted, and the temperature often goes down in case the wound is infected. Better results were obtained in the febrile cases by waiting a day or two before incising, unless there was a large accumulation of pus.

### Medizinische Klinik, Berlin

*March 15, X, No. 11, pp. 443-486.*

117 *Laceration of the Uterus during Delivery. (Zerreissung der Gebärmutter unter der Geburt.) M. Henkel.
118 Meat Poisoning. (Bedeutung der Fleischvergiftung.) Konrich.
119 Serodiagnosis of Pregnancy. (Umfrage.) Zweifel, Veit, Bumm and others.
120 Copper in Treatment of Surgical Tuberculosis. (Kupfertherapie bei ausserer Tuberkulose.) K. Stern.
121 Vital Staining and Deposits of Cholesterol in the Organism. (Vitale Farbung und Cholesterinspeicherung im Organismus.) N. Anitschkow.
122 Auscultation-Percussion by the Mouth. (Die oralauskultatorische Perkussion.) W. A. Sokolow.
123 Volvulus in a Hernia. A. Landsberger.

117. **Rupture of the Uterus During Delivery.**—Henkel says that about 87 per cent. of the lacerations occur in the lower segment, and about twice as often on the left side as on the right, and very rarely in the rear. Spontaneous ruptures are the more serious as they generally run across, while traumatic lacerations are usually lengthwise of the uterus. In 95 per cent. of the cases the women have borne other children; preceding twin delivery, hydramnion or hydrocephalus may have strained the uterus wall and predispose it to lacerate. The mortality up to 1895 averaged 70 per cent. and 45 per cent. even in 1901, but nowadays the mortality has been reduced to 18 or 20 per cent. The extent of the laceration is not proportionate to the extent of the hemorrhage, and even when there is extensive hemorrhage it may not appear externally. This is the main point, namely, to bear in mind the possibility of the uterus having torn when apparently all is going well. The only way to be certain is to feel inside the uterus after delivery is complete, and convince one's self that there has been no laceration. This is especially imperative when delivery has been difficult, with disproportion between the size of the child and the birth passages.

The lower segment may have been stretched beyond what it can bear and yet cause no subjective symptoms, but palpation during a labor pause causes pain in it. Tenderness in the round ligaments is also instructive. After the uterus tears, the parts of the fetus above the pelvic inlet become abnormally movable; the contraction ring has vanished and there is no further tenderness in the previously sensitive stretched lower segment. The labor contractions generally stop altogether when the uterus tears. The rupture once diagnosed, the uterus must be emptied at once without regard for the child; if cesarean section is done, the general anesthesia must be profound. Version and forceps are liable to increase the rupture. If the head of the child has passed through the tear, it acts as a tampon and should not be disturbed; ergot may be given to make the uterus contract around the head. Ergot is also useful when the child has been safely delivered. But the reverse should be the aim when the rupture is merely impending and the woman is to be sent to the hospital. Here everything should be done to relax the uterus and keep it relaxed, morphin in large doses, and if labor contractions start up again, more morphin. Treatment can be only by laparotomy as this alone permits oversight of the true conditions. Tubal sterilization or hysterectomy should never be omitted after rupture of the uterus. The general practitioner's task is to ward off laceration of the uterus and to detect it when it occurs, and then have the woman taken at once to the hospital for operative measures. Five patients have been treated recently by Henkel on these principles, and all were saved although some already showed signs of peritonitis.

### Münchener medizinische Wochenschrift

*March 3, LI, No. 13, pp. 689-744*

124 *Pregnancy Skin Reaction. (Neue Hautreaktion in der Schwangerschaft.) E. Engelhorn and H. Wintz.
125 Sacral Anesthesia; Epidural Injections. E. Zweifel.
126 *Prophylaxis and Treatment of Pellagra on Basis of Vitamin Theory. C. Funk.
127 Differential Cultivation of True and False Diphtheria Bacilli. M. af Heurlin.
128 No Apparent Basis for Serodiagnosis of Epilepsy. W. Mayer.
129 *Restoration of Nose. (Zur totalen Rhinoneoplastik.) J. Joseph.
130 Lengthening of Tendons by Letting Them Work Down of Themselves. (Sehnenverlangerung durch das Rutschenlassen.) O. Vulpius.
131 Microscopic Control of Prostitutes. (Was leistet die mikroskopische [illegible] der Kontrolle der Prostituierten fur di[illegible] der Gonorrhoe.) M. Müller.
132 Increasi[illegible] under the Influence of Alcohol among the Young. (Die Alkoholkriminalität der Jugend Bayerns.) K. Rupprecht.
133 Head Held Slanting with Process in Posterior Cranial Fossa. (Ursache einer bei raumbeschränkenden Vorgängen in der hinteren Schädelgrube beobachteten eigentümlichen Schiefstellung des Kopfes.) O. Muck.
134 Treatment of Delirium Tremens. Scharnke.
135 Attempt at Suicide with Seven Times the Maximal Dose of Digalen; Slight and Brief Intoxication. E. Krönig.

124. **The Placentin Skin Reaction in Pregnancy.**—Abderhalden and others have now established beyond question that an alien albumin circulates in the blood of the pregnant woman against which the organism elaborates a protective ferment. Engelhorn and Wintz here announce that this specific sensitization of the organism can be rendered manifest, in the same way as the tuberculin and luetin reactions, by inoculation of the skin with the alien albumin. They assumed that it was derived from placenta tissue and hence used a placenta extract, placentin, for the test. In seventy pregnant women a reaction in the skin was constantly obtained while there was no reaction in fifty-three men and children and non-pregnant women. The only contradictory finding was a positive reaction in one child of 6 with bladder disease. The reaction became positive in pregnant women from the seventh week on and persisted for three or four days after delivery.

126. **Prophylaxis and Treatment of Pellagra.**—Funk calls attention anew to the recent experiences in Rhodesia which showed that when whole cornmeal was used there was no pellagra while it was liable to develop when bolted meal was used. Nightingale's experience with 1,210 cases amply confirmed this although he calls the cases "zeism," not venturing to list them as pellagra cases. Funk expatiates on the importance of avoiding bolted meal, using the whole grain, and using more potatoes, stating that in the potato zone pellagra is unknown. Treatment should be a diet rich in vitamins, supplemented perhaps by yeast preparations and cod liver oil, which are exceptionally rich in vitamins.

129. **Restoration of the Nose.**—Joseph gives a profusely illustrated description of his method of making a new nose. It is a modification of the Italian method, a pedunculated, somewhat oval flap from the arm growing into the nose region. After it has taken root all around and been severed from the arm, he builds up a support beneath with two prism-shaped strips of bone taken from the tibia, one forming the septum, the other the straight profile of the nose. The photographs of the eight cases described show a remarkably good outcome.

### Therapeutische Monatshefte, Berlin

*April, XXVIII, No. 4, pp. 229-308*

136 *Principles and Technic of Organotherapy. W. Weiland.
137 Radium Treatment of Alveolar Pyorrhea. H. Euler.
138 *Treatment on Physiologic Bases of Gastric Ulcer and Allied Conditions. (Einige physiologische Gesichtspunkte in der Behandlung des Magengeschwures und verwandter Zustande.) H. Januschke.
139 Magnesium Sulphate in Tetanus. F. Mielke.
140 *Protected Names of Proprietaries. (Zum Wortzeichenschutz von Arzneimitteln.) W. Heubner.
141 Criminal Prescribing of Morphin. (Fahrlässige Morphinverordnung.) W. Heubner.

**136. Present Status of Organotherapy.**—Weiland reviews the history, bases and mode of application of organ extracts or fresh tissues, advising the general practitioner to give the preference to the organ tissue, fresh or dried, administering it by the mouth as we know that—with the exception of epinephrin—the active substances are not destroyed in the gastro-intestinal tract. With this technic, also, there need be no fear of by-effects such as have followed sometimes intravenous injection. The principle should always be borne in mind never to give a substance of this kind which is capable of augmenting the functioning of an already morbidly functioning organ. What empiric experience has been groping for through the centuries has been placed on an exact and broad basis in recent years by experimental research. The trouble, however, is that when one ductless gland is diseased, others generally suffer with it. This is particularly the case, he affirms, in diabetes, so that it is folly to waste time, efforts and money on futile pancreas organotherapy in cases of supposed pancreas diabetes. But when study of the stools shows that fat and nitrogen are being eliminated in excess, unutilized, then pancreas extracts may have a favorable influence on chronic defective pancreas functioning. He says of hypophysis extract that it seems to have a tonic effect on the heart and vessels, similar to that of epinephrin, but without the by-effects of the latter, so that Falta recommends it for disturbances in the innervation of the vessels. It has also proved useful in asthma, in Weiland's experience. In speaking of ovarian organotherapy, he remarks that when a woman has had her ovaries removed or destroyed and had an ovary transplanted from another woman, any child born to her later must be the child of the other woman.

Transfusion of whole blood is a form of organotherapy of which he makes constant use, having found it of great service in pernicious and secondary anemia. The technic is simple and easy even for the general practitioner: 20 c.c. of blood is drawn from the distended ulnar vein of the donor and, using another needle, is injected immediately into the gluteal muscle of the patient. It acts possibly merely as a stimulant to the bone marrow, but the effect is such that he commends it for the widest adoption.

**138. Physiologic Bases for Treatment of Gastric Ulcer and Spasm.**—Januschke discusses the dietetic, hydrotherapeutic and medicinal treatment aiming to keep the stomach free from sensory irritations, to soothe it so there will be no spastic contracture, and to promote the circulation in the region. Among the measures suggested as liable to be beneficial are small, frequent meals; the more the patient "relishes" his food, the greater the secretion of gastric juice, which is what we have to contend with. The sooner the contents of the stomach are passed along, the less the irritation of the stomach mucosa; an isotonic salt solution is evacuated exceptionally rapidly. An 11 or 14 per thousand solution of sodium bicarbonate or a 15 or 20 per thousand of Carlsbad salt is equivalent to the isotonic 7 or 9 per thousand salt solution. Warm stomach contents are evacuated sooner than cold, and constipation is liable to have an inhibiting effect on stomach evacuation, showing the necessity of keeping the bowels open. Januschke explains with diagrams the mechanism of the benefit from atropin with gastric ulcer. He gives half an hour before each of the three meals 5 drops of a 1 per thousand solution of atropin sulphate, doubling or trebling the dose if it does not relieve, and reducing it if there are signs of intolerance. This dosage is equivalent to 0.0009 gm. of the drug daily, fractioned, and it can be increased to 0.003 gm. Children over 6 can take these doses, he says. The course has to be kept up for several weeks. His experience has confirmed that psychic influences may affect the motor as well as the secretory functioning of the stomach. Local application of heat to promote the circulation is extremely useful, but the atropin may render it unnecessary. Measures to tone up the general circulation are indispensable in some cases.

**140. Protected Names of Proprietaries.**—The Germans are discussing new legislation on the subject and a number of legal points are here brought out. Some recent court decisions in Germany are given which sustain the view that the protected name of a proprietary becomes sooner or later the commercial term for the article in question, regardless of by whom it is made. One court decision stated: "There is no other term to designate the substance in question except its trademark designation, and hence this name must be used for its commercial designation." The buyer must rely on the trademark of the manufacturer for the reliability of the product, not on its protected name. This decision of the highest court in the land is equivalent to the declaration that trademark names cannot be protected, as they have to serve for the generic commercial designation. It is stated further that in Germany during 1913, 1,600 applications were made for trademark names of drugs; 600 more than in the previous year. A number of new drug manufacturing establishments were also founded last year.

### Therapie der Gegenwart, Berlin

*April, L, No. 4, pp. 145-192*

142 *Non-Operative Treatment of Tuberculous Lymph-Nodes in the Neck. (Halsdrüsentuberkulose.) O. H. Petersen.
143 *The Flexible Gastroscope. (Zur Methodik der Gastroskopie.) M. Sussmann.
144 Serotherapy of Pregnancy Dermatoses. (Schwangerschaftsdermatosen.) F. Heimann.
145 Compresses that Do Not Require Changing. (Dauerumschläge.) F. Steiner.

**142. Tuberculous Lymph-Nodes in the Neck.**—Petersen says that in the very earliest days of roentgenotherapy it was applied to enlarged tuberculous cervical lymph-nodes but without much effect until improvement in technic and skill has now brought most excellent results. The swollen lymph-nodes retrogress without injury to the skin, so that the cosmetic outcome is ideal. Another advantage of the Roentgen rays over the knife is that they act on all the nodes, even those with incipient lesions, too minute to be clinically apparent. The beneficial action of the Roentgen ray in these cases is the best to its credit yet, and no more failures are being encountered. The young cells of the tuberculous tissue seem to be exceptionally sensitive to these rays, but the tubercle bacilli themselves do not seem to be directly affected. This is the weak point of the treatment; the bacilli may be merely walled in as in any old encapsulated cheesy process, and the infection may flare up again if occasion offers. The roentgenotherapy should be supplemented by all the general measures usually invoked, and the sittings should be planned to avoid cumulative action. He agrees with Iselin that a total of six full doses (Sabouraud) should be the limit for one course. He waits for a month between each sitting, and then suspends this treatment for several months. Improvement once started progresses even during suspension. There may be a local reaction, swelling and tenderness and even nausea and vomiting after the sitting, but these are comparatively slight and transient. When they occur, the dosage had better be reduced a little. Rollier accomplishes equally good results in his sunlight treatment in the Swiss mountains, but this is accessible only to a few while roentgenotherapy can be applied anywhere. Several typical cases are described in full with illustrations.

**143. Flexible Gastroscope.**—Sussmann's gastroscope has been described elsewhere. Here he only reiterates the indispensable direction that the gastroscope must be introduced with the patient lying on his right side; this overcomes the curvature of the esophagus to the left where it passes through the diaphragm.

### Wiener klinische Wochenschrift, Vienna

*April 2, XXVII, No. 14, pp. 357-388*

146 *Stereochemical Properties in Connection with Cancer. (Ueber Beziehungen sterischer Atomgruppierung zum Karzinom.) E. Freund and G. Kaminer.
147 *Alimentary Galactosuria as Sign of Liver Disease. J. Hatiegan.
148 Case of Transcortical Motor Aphasia with Paralysis and Inability to Read Correctly. A. Finzi.
149 Obsessions and Psychotherapy. (Die Zwangsvorstellungen und ihre psychische Therapie.) H. Kahane.
150 Balneotherapy and Skin Disease. G. Riehl.

146. **Stereochemistry and Cancer.**—Freund and Kaminer have been investigating the atom grouping in a number of stereo-isomeric acids since their discovery that an organic acid which they extracted from the intestine content had a specific action on cancer cells and cancer serum. They here announce that maleic acid and solutions of dextrin displayed this same action.

147. **Alimentary Galactosuria in Liver Disease.**—Hatiegan reviews what has been written on this subject, including Bauer's findings in 320 cases, and then reports his own experiences with 41 cases. The patients took 40 gm. of galactose in the morning, fasting, and the urine was examined every two hours afterward. The findings are tabulated. They harmonize with those reported by others, all testifying to the constant appearance of galactosuria in cases of catarrhal jaundice, with scarcely an exception. Quantitative estimation of the amount of galactose eliminated also throws light on other affections of the liver accompanied by gall-stones. There was no febrile reaction to the galactose. In the cases of catarrhal jaundice the amount of galactose in the urine ranged from 1.95 to 8.8 gm. while with cancer of the liver there was no galactosuria in seven cases and less than 1 per cent. in the five others with one exception in which it was 2.5 gm. This figure was never surpassed in all the other cases of various other liver affections and in the overwhelming majority there was only a fraction of 1 per cent. It is possible to obtain a quantitative estimation of the galactosuria by noting the smallest amount which is followed by elimination of galactose in the urine.

### Zeitschrift für klinische Medizin, Berlin

*LXXIX, Nos. 5-6, pp. 371-550. Last indexed Feb. 28, p. 738*

151 Serial Roentgenoscopic Differential Diagnosis of Gastric and Duodenal Benign and Malignant Disease. L. G. Cole (N. Y.).
152 *Mode of Action of Dietetic Measures on the Behavior of the Sugar in the Blood in Diabetics. (In welcher Weise wirken Diätkuren auf das Verhalten des Blutzuckers bei Diabetikern.) L. Wolf and S. Gutmann.
153 Distribution of the Sugar in the Blood. (Verteilung des Blutzuckers auf Blutkörperchen und Blutplasma.) H. Tachau.
154 *Polycythemia and Liver Disease. (Polyglobulie und Lebererkrankung.) M. Mosse.
155 Digitalis Has an Elective Action on the Heart Muscle. (Digitalis und Muskulatur.) E. Reinike.
156 *Malignant Granuloma; Nine Cases. (Klinik und Pathologie der Lymphogranulomatosis.) O. Steiger.
157 Functional Diagnosis of Disease of the Kidneys. (Zur funktionellen Diagnostik interner Nierenerkrankungen.) Frenkel and Uhlmann.
158 Influence of Position of the Heart on the Height of the Peaks in the Electrocardiogram. (Einfluss der Herzlage auf die Grösse der Elektrokardiogrammzacke.) E. Egan.

152. **Effect of Dietetic Measures on the Sugar Content of the Blood in Diabetics.**—Wolf and Gutmann report the results of their study of thirty-five diabetics, including six with chronic nephritis. On a diet free from carbohydrates, the proportion of the sugar in the blood markedly decreased in the other twenty-nine, the amount of reduction usual proportional to the severity of the case. Four patients with the mildest form of diabetes had the sugar content of the blood reduced within normal range in this way. When carbohydrates were ingested, the sugar content in the blood increased and the more rapidly and with the greater intensity the severer the diabetes. When the sugar level peculiar to the case had been reached, no restriction of albumin (by vegetable-fat days) affected the sugar content, not even when the amount of sugar in the urine was remarkably reduced or the urine quite clear of sugar. Oatmeal days tended rather to increase the sugar content of the blood, if they affected it at all. The sugar content was found abnormally high in those who had died of coma. The six diabetics with chronic kidney disease always had an excess of sugar in the blood although their glycosuria was slight and could be banished by diet. The details of a number of cases, day by day, are tabulated for comparison and the work of others in this line is reviewed.

154. **Polycythemia and Liver Disease.**—Mosse reports a case analogous to a few on record in which polycythemia was accompanied by urobilin jaundice and enlarged spleen, and at necropsy the spleen was found gorged with blood; the red bone marrow showed hyperplasia, and the liver signs of cirrhosis. He thinks the liver affection must be regarded as secondary.

156. **Malignant Granuloma.**—Nearly sixty pages are devoted to this profusely illustrated study of the clinical and necropsy findings in nine cases of the Paltauf-Sternberg type of lymphogranulomatosis. The blood picture seems to be first a leukocytosis; in the florid stage the polymorphonuclear neutrophils predominate, and in the last stage there is pronounced lymphopeny. There does not seem to be any characteristic fever curve, but everything seems to indicate that lymphogranulomatosis is a chronic infectious process in the lymphatic system, displaying a malignant course in its uncontrollable progress. Syphilis and tuberculosis are the main causal factors; almost all the animals inoculated died of miliary tuberculosis. Analogous granuloma tissue developed in three guinea-pigs after intra-abdominal injection of a granuloma tissue suspension, along with the miliary tuberculosis. A number of facts were observed which suggest that the bovine tubercle bacilli are responsible for the disease. Tuberculin of human bacilli origin elicited no reaction in the clinical cases, but a positive reaction was obtained in the one case tested with tuberculin from bovine tubercle bacilli.

### Zentralblatt für Chirurgie, Leipsic

*April 4, XLI, No. 14, pp. 585-624*

159 Advantages of the Physiologic Oblique Incision in the Epigastrium. P. Sick.
160 Artificial Inversion of the Testicle in Treatment of Varicocele. R. Frank.
161 *Disadvantages of Nail Extension. (Nachteile des Steinmann'schen Nagelextension.) P. Ewald.

161. **Nail Extension.**—Ewald states that serious disturbances followed in seven of the twenty-nine cases of fracture of the leg in which he applied extension dragging on nails driven into the bone on each side. The fracture healed ideally in every case, but on one patient with a compound fracture the holes left by the nails were the seat of recurring inflammation so that they did not heal up finally until two and one-half years after the operation. In the six other cases the nails had been driven in too close to the ankle—Steinmann insists on a distance of at least 2.5 cm. Lack of this precaution caused in one case painful ankylosis of all the joints in the ankle and foot, with severe atrophy of the bones. The nails had been driven in only 1 cm. above the ankle. After months of ineffectual measures the young man was fitted with a walking splint to relieve the joints, but there is still—after three and a half years—some painful ankylosis of the ankle. In other cases the nails seemed to have contributed to the production of a spur on the calcaneum.

### Zentralblatt für Gynäkologie, Leipsic

*April 4, XXXVIII, No. 14, pp. 505-544*

162 The Prognosis in Puerperal Fever. Baeumer.
163 What Can Be Learned from External Examination during Delivery. (Leistungsfähigkeit der äusseren Untersuchung während der Geburt.) O. Hoehne.

### Gazzetta degli Ospedali e delle Cliniche, Milan

*XXXV, Nos. 36-39, pp. 377-416*

164 Negative Results of Autoserotherapy in Hydrocele; Four Cases. M. Zannini.
165 Congenital Polycystic Tumors in the Neck. E. L. Piazza.
166 Vulvovaginitis in Children. L. Dozzi.
167 Intermittent Hydronephrosis from Kinking of the Ureter from a Single Kidney. A. Austoni.

### Riforma Medica, Naples

*March 21, XXX, No. 12, pp. 309-336*

168 Production of Antibodies in Animals Treated with the Bacillus of Rhinoscleroma. R. Stanziale.
169 Research on the Venous Circulation in the Leg. (Sulla circolazione venosa dell' arto inferiore con vene normali e varicose.) V. Marcozzi.
170 The Neutrophils in Pulmonary Tuberculosis. P. Masenti.

*March 28, No. 13, pp. 337-364*

171 *Plague Bacilli Carriers. (Esistenza del bacillo pestoso nell' organismo senza sintomi clinici.) A. Ilvento and M. Mazzitelli.
172 *Viscosity of the Blood and the Blood Pressure. (Viscosimetria del sangue e pressione cardio-vascolare.) M. Bucco. Commenced in No. 12.

171. **Plague Bacilli Carrier.**—A young man was kept under surveillance at Tripoli because he had been living with another who had developed the cutaneous form of bubonic plague. The first young man was apparently healthy but the lymph-nodes in the groin and axillae were enlarged on both sides. Puncture of one of the lymph-nodes in the groin revealed plague bacilli. He was evidently a healthy bacillus-carrier and as the foci did not communicate with the exterior he might be called a carrier with closed foci. The infection in this case probably acted as a vaccine, rendering the bearer immune, and such cases are liable to occur in any epidemic of plague.

172. **Viscosity of the Blood and the Blood-Pressure.**—Bucco has been studying on nineteen patients both the viscosity of the blood and the blood-pressure; the latter was abnormally high in all but two. He was unable to detect any special connection between the viscosity and the blood-pressure except that when the pressure was low the viscosity was generally low also. He concludes that to date there have been no laws discovered which render the parallel study of the viscosity and pressure of any special moment for differential diagnosis.

### Rivista Ospedaliera, Rome

*March 15, IV, No. 5, pp. 221-268*

173 *Quantitative Estimation of Urea. (Nuovo ureometro di precisione.) F. Olivieri.

173. **Improved Ureometer.**—Olivieri states that at the Rome university laboratory such extensive use is made of Ambard's "uremic constant," that is, the relative proportion between the amount of urea in the urine and in the blood, that it was found necessary to improve on the ureometers in vogue. He gives an illustrated description of three forms of the instrument he devised to overcome the difficulties of those previously used. His ureometer is maintained at a constant temperature by being immersed in water. There is no rubber used, as this deteriorates rapidly and requires constant surveillance to avoid error. Another feature of his instrument is that the tube branches so that it can be read without letting out the water. The reagent is the usual sodium hypobromite solution. The findings he says can be relied on for precision and constancy and materially facilitate the functional tests of the kidney by the Ambard method. (Described in The Journal, March 7, 1914, p. 813.)

### Semana Medica, Buenos Aires

*February 26, XXI, No. 9, pp. 477-532*

174 Technic for Serodiagnosis of Pregnancy. (Procedimiento de Abderhalden para el diagnostico del embarazo.) M. Beatti.
175 Medicine in Spain in the Early Eighteenth Century. (Aspecto medico de la vida, obras y trabajos de Torres Villarroel.) S. V. de Castro.
176 Subtotal Abdominal Hysterectomy for Fibromas or Disease of Ovaries or Tubes. C. T. Carvallo.
177 Platinum Powder Best Means to Bring Out Invisible Finger Prints. (Sobre revelacion y fijacion de huellas dactilares invisibles.) A. Lecha-Marzo.
178 Psychasthenia. (El concepto de la psicastenia.) L. Schneyder.

*March 12, No. 11, pp. 585-636*

179 *Pubiotomy for Primiparae. J. A. Gabastou.
180 Improved Technic for Cultivating the Gonococcus. (Nuevo medio de cultivo del gonococo.) E. M. Gache.
181 Uterine Cancer. P. S. Mimbela.
182 Evolution in the Vegetable Kingdom. (Nuevas ideas sobre la evolucion del reino vegetal.) V. Delfino.
183 Predetermination of Sex. (El determinismo del sexo y la astrologia.) J. Regnault.

179. **Pubiotomy.**—Gabastou reports twenty-seven pubiotomies done on primiparae in his service since 1905; two of the women died from the effects of the chloroform and two from septicemia, so that the mortality of the operations was about 7 per cent. All of the children were born alive except three, one succumbing to the effect of preceding efforts at extraction, one to prolapse of the cord, and the third to the long deliberation before the pubiotomy was attempted. The chief danger of the operation is that as the head emerges the soft parts, lacking the solid natural background, may tear through the vagina up toward the severed pubis. High age of the patient and the necessity for forceps delivery magnify this danger. Laceration occurred in fourteen of the twenty-seven women but it healed smoothly leaving no disturbance in all but two, who succumbed to sepsis. Both of these were infected from the start. One patient was left with a vesicovaginal fistula requiring another operation later. The urine showed that the bladder had been injured in four cases, but all healed under a retention catheter for a few days. His impressions on the whole are very favorable unless infection is already installed.

### Pediatria, St. Petersburg

*V, No. 10, pp. 237-316. Last indexed March 21, pp. 976*

184 Set of Sixty Models of Infants' Stools. (Modelei dietskikh isprazhnenii.) D. A. Sokoloff.
185 Pathogenesis of Rachitis. V. O. Mochan.
186 Laryngostenosis. V. A. Bush.
187 Purpura in Children. A. Artamonoff. Commenced in No. 8.
188 What Is Needed for the Physical Development of Our Youth. E. E. Ivanoff.

*Nos. 11-12, pp. 317-447*

189 Composition of the Blood and Body in General of Children in Relation to Nutrition and Weight. A. O. Karnitzky.
190 *Diagnosis of Brain Tumors in Children. I. V. Levich.
191 Familial Myxedema; Thyroid Grafting; One Case. V. N. Vorobieff and V. A. Perinoff.
192 Three Cases of Myxedema in One Family. N. A. G. Vakar.
193 Metrorrhagia of the Newly Born. S. K. Gogitidze.
194 Infant Welfare Work in Russia. M. Bezbokaya.

190. **Brain Tumors in Children.**—The necropsy in the first case confirmed the tuberculous nature of the tumor, surmised from the coexisting tuberculous lesions elsewhere. But conditions in the second child offered a prospect for an operative cure, and the tumor proved to be a hemangioma in the cerebellum. The patient was a girl of 9 suffering from headache and vomiting with increasing difficulty in walking and in vision. When she attempted to walk alone she fell forward, and toward the left side. The left leg was weaker than the right; the tendon reflexes stronger on the left side; the pupil reflexes were abolished and there was no perception of light. The pains were located in the occipital region and there was marked nystagmus and paresis of the left facial nerve. The mind was not affected, and the child seemed normal otherwise. There was no history of syphilis or tuberculosis and the rapid development of the trouble suggested a sarcoma. Four months after the operation the child could walk without aid; there is some perception of light and the pupil reflexes have returned to some extent.

### St. Petersburger medizinische Zeitschrift

*March 15, XXXIX, No. 6, pp. 73-83*

195 Gynecologic Peritonitis. (Pelvioperitonitis exsudativa.) L. von Lingen.
196 *Occurrence and Course of Blood Diseases. (Sog. Blutkrankheiten.) O. Moritz.

196. **Blood Diseases.**—Moritz states that in 7 of his 31 cases of pernicious anemia the bothriocephalus was responsible and one patient died before the helminths could be expelled; twenty-two heads were found in his bowel. All in this group had fever, systolic murmurs and retinal hemorrhages. In 4 other men and 4 women the anemia was apparently of the pernicious type but it had followed chronic and severe genital or hemorrhoidal hemorrhages; these too, all had fever, most of them also achylia, edema and enlargement of the liver. In the elderly this picture may suggest heart disease. Moritz made this blunder in one case and treated an elderly man with edema, heart murmurs and

dyspnea, on the mistaken assumption of myocarditis for several months, and finally sent him to Kissingen for a course of treatment, before the idea of examining the blood occurred to him. This altered the diagnosis and under a four-months' course of treatment with repose, dieting and arsenic a complete cure was realized. In 2 other cases of pernicious anemia malaria could be incriminated; the interval since the malaria was fifteen years and one year. Both had fever but no malaria germs could be discovered; one had paroxysmal hemoglobinuria and both had achylia and enlarged spleens. The reds numbered 1.7 and 1.3 millions, neutrophils 59 and 69 per cent. In 8 other cases no cause for the pernicious anemia could be found except lack of proper food and ventilation. Two were materially improved and regained their earning capacity for twelve or eighteen months, but all in this group died in the course of two months up to three years. There was a history of syphilis in 2 twenty and eight years before. Achylia was pronounced in all this group.

The constancy of achylia in all his cases has convinced Moritz that insufficiency of the digestive tract is the basis for pernicious anemia. Fatty degeneration of the liver and hyperplasia of the spleen were found invariably at the necropsies. In 4 other cases young men succumbed to a fulminating acute anemia, some form of infection having evidently induced a hemolytic sepsis. One tabetic patient developed pernicious anemia. Moritz knows of only one case on record in which a young man with severe anemia after recent syphilis was completely cured with arsenic and calomel. One of the 8 patients with severe myeloid leukemia improved remarkably after he had treated himself à la Baunscheidt, a large number of superficial abscesses developed at the points of the multiple punctures of the skin.

All his chronic myeloid and 14 lymphatic leukemia patients improved under treatment, but the blood picture never returned to normal. One elderly patient with lymphocyte leukemia for two years was restored to clinical health under Roentgen treatment and the improvement has persisted three years to date. The leukocyte count in another was restored to normal but the patient died in an acute exacerbation. One elderly man had numerous very much enlarged glands and he was given Roentgen treatment for five or ten minutes a day, but the total in eleven days was not much over one erythem dose. No change was noticed until suddenly all the glands subsided rapidly in size, and fever and diarrhea set in, fatal in three days. With myeloid leukemia such mishaps are less to be feared. Benzol in 3 cases was followed by improvement but no cure was realized with any measures in any case of leukemia. All his 5 patients with Hodgkin's disease died; a lymphosarcoma was a necropsy surprise in one case, the patient the father of one of the young men with acute leukemia. In his 4 cases of Banti's disease, in 2 the spleen rapidly subsided in size after a severe intestinal hemorrhage. Extensive varices below the umbilicus were a marked feature of one of these cases. His experience suggests further a familial element in pernicious anemia and that every effort should be made to cure mild cases of anemia and ward off the pernicious form.

### Norsk Magazin for Lægevidenskaben, Christiania

*April, LXXV, No. 4, pp. 369-504*

197 *Importance of Daily Physiologic Control during Training for Athletics. (Betydningen av anatomisk-fysiologiske undersøkelser av idrætsmænd.) P. Torgersen.

198 The Leukocyte Curve, etc., with Appendicitis. (Appendicitens patologi.) S. Widerøe.

197. **Anatomic-Physiologic Control in Athletics.**—Torgersen examined repeatedly 200 athletes, some of them world champions—a total of nearly 600 examinations, besides 1,200 examinations of members of a rowing crew. All his findings confirm anew the absolute necessity for skillful daily medical examination during training. There have been hitherto no standards to go by, and the tables and photographs here presented aim to supply this lack. A record should be kept of each individual, with the physical measurements, and findings in heart and lungs, kidneys, blood-pressure before and after exercise, and vital capacity alone and proportional to the weight. One champion athlete had 71.8 c.c. vital capacity per kilogram of weight. His nearest competitors had only 68.1 and 64.7 c.c., respectively. The marathon runner with legs that measured 84.1 cm. won over those that measured 83 or 82.6. The marathon runners examined measured from 171 to 158.5 cm. and weighed from 65 to 49.5 kilograms, with a vital capacity of 4,500 to 3,600 c.c., much above the average.

The blood-pressure rises after brief exertion but then it falls, and the drop is earlier and lower the weaker the constitution and the less perfect the training. The younger set react with the most marked extremes. The appearance of albumin in the urine was always accompanied by an exceptionally low drop in the blood-pressure, accelerated pulse, great loss of weight and subjective ill feeling, all pointing to a disproportion between the effort and the physical capacity at the time.

One of his tables gives the average of 1,200 examinations of a rowing crew, and he urges others to keep records along the same lines, recording for each the weight the first and last day of training; the highest and lowest weight; the highest and lowest change in weight after rowing, and the average. Also the lowest and highest and average blood-pressure before and after the practice; the greatest, smallest and average drop, and the six similar findings for the pulse. His average for four juniors and four seniors was respectively: loss of weight after rowing practice, 656 and 527 gm.; blood-pressure before, 107 and 110; blood-pressure afterward, 96 and 103; drop in blood-pressure after rowing, 11 and 7; pulse before, 74 and 64; pulse afterward, 88 and 76. The range of loss of weight after a rowing course was, among the juniors, from 1,000 to 1,350 gm.; among the seniors, from 200 to 1,000. By examining in this way every day during training, a complete oversight of the physical equipment can thus be maintained, and the work be graduated to the physical capacity at the time. This is the only way, he insists, to get the best results from athletics for every one interested and avoid irreparable injury to those whose ambition outstrips their body.

### Ugeskrift for Læger, Copenhagen

*March 26, LXXVI, No. 13, pp. 540-596*

199 Fluctuations in Weight of the Tuberculous during Sanatorium Treatment. (Vægtsvingninger hos Brystsyge under Sanatoriebehandlingen.) N. J. Strangaard.

*April 2, No. 14, pp. 597-634*

200 *The Balance-Sheet of Sanatorium Treatment in Denmark. (De paa Silkeborg Folkesanatorium opnaaede blivende Resultate.) S. Bang.

200. **Sanatorium Treatment of Pulmonary Tuberculosis.**—What has been accomplished by the public sanatoriums in Denmark during the thirteen years since they were founded is the question which Bang seeks to answer. He says that conditions are so different for men and for women that they should be considered separately. Five years after discharge from two sanatoriums, 38.9 and 36.6 per cent. of 731 and 1,304 men had full earning capacity; 44.9 and 31.6 per cent. had died. Classifying according to the stage of tuberculosis, it is surprising to find full earning capacity in 29 and 41.5 per cent. of those in the second stage, and in 10 and 15 per cent. of those in the third stage. He thinks that these figures show that in many cases an old stationary tuberculous affection was accidentally discovered and its torpid nature not recognized. The patient was sent to the sanatorium but the fact that the process kept mild and torpid should not be credited to the sanatorium, as the case would have progressed favorably with or without treatment. Going over the records of the cured cases one by one, he has found extremely few in which one could say that without the sanatorium treatment the course would have been unfavorable. Mere training in hygiene and prophylaxis does not require many weeks, so that he thinks a good part of the work done by the sanatoriums was wasted from lack of discrimination in selecting the persons who actually require and will benefit by the course of treatment.

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## THE SYMPTOMATOLOGY OF TRIFACIAL NEURALGIA

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Identified as a morbid entity more than 120 years ago,[1] seen by almost every practicing physician, and known now as always by its clinical features alone, some misbeliefs concerning the symptomatology of trifacial neuralgia, tic douloureux, are more or less current. Hence the following brief review of the subject based on 220 personal cases, although only 200 have been tabulated for statistical purposes.

So far as I have been able to ascertain, these were all cases of true trifacial neuralgia, typical tic douloureux, *la grande névralgie* of Lévy;[2] not migraine, not sinus disease, not herpes or other symptomatic pains about the face. For, as Head[3] says, "This is a definite disease of the nervous system"; as a German colleague put it, *etwas für sich*, something *sui generis*, not to be confused in nature or doings with anything else. In most of my cases the diagnosis was confirmed by results of treatment. All doubtful ones have been excluded.

### SEX

Of the 200 cases tabulated, 96 were in men, 104 in women. Some observers have found the disease more frequent in women, others more frequent in men.[4] Probably the difference is negligible. At one time in my experience I had seen more cases in men than in women. Dana[5] thought it "at least three or four times as frequent in women under 40 as it is in men" (ten women, three men), but probably larger statistics would change his statement. Of my cases which began under 40, twenty were in men and twenty-six in women. But the first seven with onset under 40 were all in women.

### AGE

The age of the patients when seen by me has not been tabulated. As the disease had existed from a few weeks to more than twenty years, such a table would have no value and might be misleading. But the age at onset may be noted, especially in view of the opinion expressed by a great observer of wide experience that the malady is essentially one of "the degenerative period of life."[5]

TABLE 1.—AGE AT ONSET OF TWO HUNDRED CASES

| Decade | Number | Per Cent. |
|---|---|---|
| First | 1 | 0.5 |
| Second | 3 | 1.5 |
| Third | 11 | 5.5 |
| Fourth | 37 | 18.5 |
| Fifth | 56 | 28 |
| Sixth | 59 | 29.5 |
| Seventh | 25 | 12.5 |
| Eighth | 8 | 4 |

The most precocious case in this series began at 7, and I have seen another not included in the table which began at 8. As these are quite exceptional cases, probably much more exceptional than my statistics would indicate, a few words about them seem to be in place.

CASE 1.—The first patient was 34 years old when first seen by me, at which time the disease was typical. He had been operated on nine times for the pain and twice for closure of a salivary fistula incidentally caused by one of the other operations. The operations for pain were followed by relief for about the usual period. I had him under observation for more than two years, relieved him by injections of alcohol, and the diagnosis never was in doubt. Of course, I have only his statement as evidence that the disease began at the age of 7, but he gave such a straight and characteristic history that I see no reason to doubt it. For the first four years he suffered for only a week or two each year—intervals which are not at all unusual in this disease—and the pain was confined to the right inferior maxillary branch. After that the periods of pain became more frequent and prolonged and spread to the middle branch. Throughout the pain showed the peculiar, almost pathognomonic features presently to be noted.

CASE 2.—The other patient, who was seen but once, in 1902, when he was 40 years old, began to have facial neuralgia on the left side at the age of 8. During boyhood the attacks recurred about every one to three months and lasted for about a month, though at 13 he had a free interval of one year. Since then the pain has recurred every few months, an attack lasting for from one to five or six months, and has been characteristic of trifacial neuralgia. His general health was good and the results of physical examination were negative except for a slight intention tremor, more distinct on the right side. A recent letter (Jan. 29, 1914) from his physician says that on the treatment I advised (castor oil and aconitin) he improved, but "his attacks still stay with him"; though "they are less frequent, less severe and of shorter duration than ten years ago. . . . His general health is and has been good."

In three cases the disease began at the age of 75, with nothing unusual in symptomatology. More than half the cases (57.5 per cent.) began between 40 and 60, about equally divided between the fifth and sixth decades. The latter may be placed within the involutional period; the former hardly. Certainly neither belongs to the realm of physiologic senility; but the question at once arises, Did not these patients belong to the precocious senile, not old in years but old in tissues? This question must be answered in negative. Putting aside the wear and tear of pain, the pull-down of loss of sleep and the depletion of relative starvation, I cannot say that these patients were older than their years. Even if my observation and judgment on this point were at fault, how shall we account for the forty-eight cases (24 per cent. of all), beginning under 40? And how is it that only thirty-three cases (16 per cent.), began over the age of 60? How explain the cases in which the disease has existed for fifteen or twenty years without notable change in vessels or other organs? Further, many of the patients, aside from the neuralgia, presented a picture of robust manhood or womanhood. For instance, a patient now 57 years old, whose neuralgia began twenty-four years ago and was very severe for sixteen years but has been suppressed by treatment for the last eight years, is in perfect physical condition and seems much younger than she is.

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[1] Fothergill, 1792, Valleix, 1841.

[2] Lévy, Fernand: Essai sur les névralgies faciales, Paris, 1906.

[3] Head: Allbutt's System of Medicine, vi, 725.

[4] Krause, 9 women to 3 men; Rose, women 5, men none; Horsley, 11 men to 8 women; Head, 7 men to 4 women. Bernhardt's compilation gave 97 men, 52 women; Erb's 51 women and 21 men. Dana's personal statistics were men 20, women 37.

[5] Dana, Charles L.: Natural History of Tic Douloureux, THE JOURNAL A. M. A., May 5, 1900, p. 1100.

A lawyer, aged 62, who did not look over 45, had not had a day free from pain for five years, "had not been in a bed for three months," but got some sleep in a chair after drinking from a pint to a quart of whisky each evening, and had taken not less than half a pint daily for five years, was physically sound. I followed the case for over three years, at the end of which time he showed signs of cirrhosis of the liver, but otherwise was unusually vigorous in body and mind.

Then, I have been asked whether the disease in old persons is not different; whether there is not a senile and juvenile type.[5]

This question, also, my experience answers in the negative. The symptomatology is the same in the young and the old, the strong and the weak, in those with intercurrent disease and in those without it. It is indeed a disorder eminently idiosyncratic; of unknown nature but of unmistakable individuality.

### PREDISPOSITION

The diversity of opinions concerning predisposition almost forces one to conclude that nothing definite is known. Head[6] says that these patients "are in no sense of the word neurotic," Oppenheim[7] that "neuropathic predisposition (*Belastung*) plays an important rôle in the etiology," and Grasset[8] that the nervous temperament is the principal predisposing influence. Lévy[2] divides them into (1) *des arthritiques,* (2) *des neuro-arthritiques* and (3) *des nerveux.* Exactly what a Frenchman means by "arthritic" is about as difficult to say as what an American means by "lithemic" or "rheumatic" or an Englishman by "gouty." The terms are all vague, essentially different but loosely synonymous.

The problem of neuropathic predisposition is a poor one for statistical solution. The answer must largely be one of opinion. I have the impression that my patients were rather more nervous than the average, but certainly as a class they have not been essentially or even notably neurotic. That there is no direct and similar heredity in facial neuralgia seems quite clear. Though in seven of my cases there was a history of this disease in ascendants or other relatives, in no case was a parent affected.* Not one of my patients had a psychosis, not one epilepsy, and not one was mentally defective. Outspoken hysteria has been conspicuous by its absence. A few have been unstable and emotional, but when a person for two or ten or twenty years has had paroxysms of excruciating pain—pain started by eating, drinking, talking and washing the face—pain that may suddenly awaken him out of a sound sleep or jab him at any moment during the day—we cannot reasonably expect that mental stability and emotional equipoise called normal. Particularly worthy of note is the fact that only one of the 220 patients had really contracted the morphin habit. Of course many of them were taking morphin for the pain, but when treatment stopped the neuralgia, the patients stopped the drug. The exception was the man in whom the disease had begun at the age of 7, and his morphinism was not bad.

In one respect, however, trifacial neuralgia does seem to have a neuropathic relationship. Some years ago Putnam[9] called attention to some relations of migraine to neuralgia, and Dana[5] as well as Lévy[10] and others have noted their frequent association. In my own cases of neuralgia, migraine has been by far the most frequent neurologic concomitant. Of 200 patients forty may fairly be said to have had migraine, certainly a much higher ratio than that observed in the ordinary run of patients.

### SIDE AFFECTED

In 62.4 per cent. of the cases the trouble began on the right side, in 37.1 per cent. on the left, and in one case, 0.5 per cent., simultaneously on both. These figures agree fairly well with those of Sicard,[11] who has seen a very large number of cases. Dana's[12] figures are right, twenty-two, left, fourteen. The ratio changes somewhat if we consider the cases not at the time of onset but when under observation, because by that time some of them have become bilateral. My statistics are: right, 52.3 per cent.; left, 40.9 per cent.; bilateral, 6.8 per cent.[13] In no case, however, was there severe neuralgia on both sides at the same time. In a few there was severe pain on one side, with more or less frequent twinges on the other. In the majority the pain on one side, having spontaneously disappeared or yielded to treatment, appeared on the other. In only one case, so far as I know, did this alternation occur more than once. In this case the pain alternated every few days. In one case the two infra-orbital nerves had been simultaneously operated on, with relief, and in another case cutting one infra-orbital nerve had relieved pain on both sides. For the preponderance of the right side I have no explanation.

### BRANCH INVOLVED

One of the most current misconceptions of the symptomatology of trifacial neuralgia relates to the location of the pain. Apparently only those with considerable experience who at the same time have given the subject careful attention have noted the truth. Obviously much of the error is due to uncritical repetition of earlier statements. I have asked many general practitioners which branch they considered the most frequently involved, and have almost invariably received the same answer: the first or supra-orbital. From not a few good neurologists I have had the same reply. Needless to say, many standard text-books make the same statement. For instance, Bernhardt[14] gives the relative frequency as first branch, 101; second, twenty-seven; third, eleven. Jelliffe[15] says, "the ophthalmic branch the oftenest, the inferior maxillary least often." Wertheim Salomonson[16] says that he found the first branch involved in 39 per cent., second branch in 20.2 per cent., and third in 32 per cent. He does not account for the remaining 8.8 per cent. Even Oppenheim[17] in his matchless work says, "Particularly often is the first branch affected." This is wrong. It is by far the least frequently involved. My figures are as follows: The trouble began in the supra-orbital branch in only 8.5 per cent. of the cases, in the middle or infra-orbital branch in 49 per cent., in the third or inferior dental division in 25 per cent., and in two or more branches in 7.5 per cent. But even this small percentage for the first branch is greatly reduced if we analyze the cases as seen. In only two (1 per cent.) of the 200 cases when first examined by me was the pain limited to the first branch. Could all of the patients have been seen at the time of onset, I believe that the foregoing 8.5 per cent. would be considerably reduced because of a strange peculiarity of this disease, which will be described below but may be mentioned here. In some cases, while the pain is particularly troublesome in the first branch, it really originates in the second branch, which was primarily affected but in which the pain is less severe. Later on, in giving the history of his trouble, the patient forgets the trifling pain in the middle area and states that the pain began in the supra-orbital region. I may add that others who in the last few years have studied this disease have come to a conclusion similar to mine.[18] The cause of this gross error, I believe, lies in the former confusion of migraine (long popularly known as "neuralgic headache"), the pain of sinus disease and probably supra-orbital herpes with true neuralgia.

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[6] Allbutt's System of Medicine, vi, 732.

[7] Oppenheim: Lehrbuch der Nervenkrankheiten, Ed. 6, p. 736.

[8] Grasset: Maladies du system nerveux, ii, 114.

[*] Since writing this passage I have seen one patient who says her mother has the same disease.

[9] Putnam: Boston Med. and Surg. Jour., 1896, cxxxv, II; Jour. Nerv. and Ment. Dis., March, 1900, p. 129.

[10] Lévy: Essai sur les néuralgies faciales, p. 47.

[11] Sicard: Personal communication to the author.

[12] Dana, Charles L.: Natural History of Tic Douloureux, The Journal A. M. A., May 5, 1900, p. 1100, footnote.

[13] This includes cases not bilateral when first seen, but which became so during observation. Compared with the experience of others, this is a high proportion of bilateral cases.

For the other branches an analysis of my cases shows, in round numbers, the following incidence: Pain limited to the second division, 11.5 per cent. (right, 7 per cent.; left, 4.5 per cent.). Pain limited to the third division, 17 per cent. (right, 11; left, 6).

Pain in first and second divisions, 15 per cent. (right, 10; left, 5). Pain in second and third divisions, 28 per cent. (right, 16; left, 12). Pain in all three branches, 10 per cent. (5 per cent. on each side). The sum total of the involvement of each branch, whether alone or in combination, is shown in Table 2:

TABLE 2.—INCIDENCE OF PAIN ACCORDING TO BRANCH INVOLVED

| Branch | Times | | Cases |
|---|---|---|---|
| | No. | Per Cent. | Per Cent. |
| First | 71 | 18.5 | 35.5 |
| Second | 167 | 43.6 | 83.5 |
| Third | 145 | 37.9 | 72.5 |

The most useful conclusion to be drawn from all of these figures is that *pain limited to the supra-orbital region* probably is not neuralgia at all. Of considerable interest, however, is the fact that in 47 per cent. of the cases, pain was limited to one division of the nerve, in 43 per cent. to two branches, and that in only 10 per cent. were all three involved. These figures, it seems to me, make it difficult to assume that the disease is located in the gasserian ganglion. But of this more farther on. It is also to be noted that in no case was there pain in the first and third divisions, the second being free. Two branches being involved, the combination always was first and second or second and third, the latter combination being almost twice as frequent as the former.

### CHARACTERISTICS OF THE PAIN

This is a short chapter, and yet here also are found some misapprehension and a little misinformation.

The pain of trifacial neuralgia is essentially *short-lived*. To this rule I have known only a single exception. Nearly always the disease begins with an instantaneous sharp pain and for some time is manifested by a repetition of such pains. Shoot, stab, jab, flash, dart, knock, zipp, twinge, bing, shock, are words patients have used in the description. Not infrequently the pain is likened to that caused by touching an exposed nerve or to the shock of an instantaneous electric current or to a bit of zigzag lightning in the face. Occasionally the inception is by a severe pain of appreciable duration, say a few seconds, and very rarely it is preceded for a short time by a vague sense of discomfort or paresthesia of some sort.

In exceptional cases the patient may have nothing but the instantaneous pains for years, but ordinarily after some months they become of longer duration, constituting a paroxysm, but they are always short. I have seen one case in which the single pains lasted fifteen minutes and one in which they were as long as five minutes. These were the longest. Pains of more than two minutes are very exceptional. In bad cases, patients may state that the pain continues for an hour or more; but these are instances of very rapid succession of brief paroxysms.

The moral is that any pain about the face, forehead or temple which is a steady ache, even with exacerbations, or which is continuous for half an hour or more, is not trifacial neuralgia. Nor does the pain of this disease throb with the pulse. My one exception is as follows:

Case 3.—A woman, aged 58, who gave a history of migraine from the age of 30 to the menopause at 48, was seen, Sept. 22, 1908. Four years before she had begun to have a steady pain in the right upper alveolus. (There were no teeth.) The pain remained limited to this region until March, 1908, when it extended upward in front of the ear and for the last two months had involved the right forehead. The pain was constant, worse at night and so severe that she required morphin every night. The patient said that the pain was deep-seated, "in the bones." It was not aggravated by eating, talking or washing the face. Some months before the onset of the pain, two tumors, said to be sarcomas, had been removed from the scalp of the right occipital region. The heart was hypertrophied, second aortic sharply accentuated. The urine contained a trace of albumin and numerous granular and hyaline casts. Although I could find no other evidence of organic disease, and a competent rhinologist could find no disease of the accessory sinuses of the nose, I declined to treat the case as one of neuralgia and sent the patient back to her physician.

She returned just three years later to demonstrate my mistake. During the winter following her visit to me the pain began to be paroxysmal. It was still more severe at night, though during the day she was seldom free for more than half an hour. Not until about a year before had she noticed that at times washing the face, eating, etc., would start the pain, but this characteristic feature (see below) had since then been constant. I found, however, that it required a sharp rub of the skin or percussion over the malar bone to start a paroxysm. Generally it was spontaneous. There was no more evidence of local or central organic disease than before, and she was relieved by injections of alcohol. After a time the pain returned, more typical in character, and June 28 and July 1, 1912, she was again injected, there being at this time no cause to question the diagnosis. A report from her physician, Feb. 21, 1914, says that "she is getting along fairly well, not enough pain to prevent her from going about normally." "She is gaining in weight and seems quite contented." So I think it is fair to conclude that the case is one of trifacial neuralgia and not pain due to some undiscovered organic disease.

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[14] Bernhardt: Nothnagel's Specielle Pathologie und Therapie, xi, 245.

[15] Jelliffe: Osler's Modern Medicine, vii, 777.

[16] Salomonson, Wertheim: In Lewandowsky's Handbuch, ii, 16.

[17] Oppenheim: Lehrbuch der Nervenkrankheiten, Ed. 6, p. 738.

[18] Lévy: Essai sur les névralgies faciales, p. 147. Sicard: Personal communication. Alexander: Personal communication.

The pain of trifacial neuralgia is *severe*. In the very beginning the little darts of pain may not be very distressing, and occasionally in a developed case the patient has between his paroxysms minor pains, or paresthesias or discomfort; but these are negligible features. The real pain, be it for one-tenth second or five minutes, hurts with a poignant, piercing hurt. In most cases it is excruciating. Consequently, any dull or throbbing ache, sense of pressure or weight or drawing, or a feeling of heat or cold, however distressing it may be, is not facial neuralgia.

One of the most striking features of the pain, one which is of paramount value in diagnosis, is that it is started by *relatively slight peripheral irritation.* A sharp rub with the finger somewhere on the face or in the oral cavity may be counted on to start it.[19] This test may not apply at any given moment, but if repeated at different times it is practically certain to succeed. In many instances the peripheral stimulus may be wondrously slight. A touch on the moustache, a breath of air, a fly alighting on the face, simple nictitation may suffice.

If, then, we find that our patient is eating and drinking (especially cold liquids) washing the face and cleaning the teeth with impunity, we may be pretty certain that he is not suffering with trifacial neuralgia. A patient who has been *rubbing* the face with liniments, making cold applications or using massage,[20] has something else. Indeed, if the sufferer indicates the seat of the pain by touching the face, a doubt that he has neuralgia at once arises. Obversely, he is constantly on guard, warding off any contact in the sensitive area. He shrinks when the examiner approaches to test sensation.

This serves to introduce what I have called *dolorgenetic zones.*[21] By such a zone I mean an area in which a slight irritation starts the pain. In a bad case with involvement of all three branches, a touch or momentary friction anywhere in the distribution of the fifth nerve may start a paroxysm. Sometimes, however, these zones are peculiarly restricted: a spot on the lip or at the wing of the nose no larger than a finger-nail. Such are the cases in which tapping a tooth, and only one, starts the pain. In the beginning the pain may be confined to the point from which it is started: to what one might call the trigger area. I have seen one case in which a wedge-shaped piece had been excised from the lip because at the time of the operation the pain was started by touching this spot and was confined to it. We know how many hundreds of thousands of teeth, good and bad, have been sacrificed to this disease, though, of course, they were not all "trigger teeth."[22] But an interesting and unexplained[23] variation of the pain-genetic or trigger zones is that the zone may be in one place and the pain in another. Touching the lower lip may cause a pain not there but in the tongue. Rubbing the nose may start a shoot of pain or a severe paroxysm in the upper lip, the nose being painless. Stranger still, the trigger zone may be in the distribution of one division of the nerve and the pain in another. Rubbing the chin may cause pain not in the inferior maxillary distribution but in the upper lip or wing of the nose. Ordinary use of the handkerchief may cause a shoot of pain over the eye. A number of times I have known the act of swallowing to cause pain in neither the second nor the third division, but in the supra-orbital branch. Indeed, this correlation of second to first branch is relatively frequent, but I recall only one case in which the reverse order obtained: the trigger area in the supra-orbital and the pain in the superior maxillary. With one exception, too, the trigger area has been in the same or in the adjoining division. In one case rubbing the lower lip caused pain in the forehead, none in the lower or middle branch; but this patient had been injected about two and a half years before.

Needless to say, the trigger zones are of considerable importance in relation to local treatment. Obviously it is useless to operate only on the supra-orbital nerve if there be a trigger zone on the cheek, or to attack the second division at the infra-orbital foramen if deglutition starts pain. In fact, it is better to attack first the branch supplying the trigger zone. In a number of cases treatment of the middle branch alone has sufficed to suppress pain in the supra-orbital.

Perhaps this is the best place to note that occasionally the pain irradiates into cervical nerves and even down the arms, and that in a couple of instances using the arms or percussion of them might start the facial pain.

Just here a few words may be said of the classic *tender points* or pressure-points of Valleix; and these words in substance are, *non sunt.* So far as trifacial neuralgia is concerned the points do not exist, many standard text-books to the contrary notwithstanding.[24] Firm pressure of any nerve of sensation against bone is painful—as witness the ulnar at the elbow. Consequently, pressure at the mental or infra-orbital foramen is painful, and every schoolboy knows that pressure at the supra-orbital notch hurts. It is also true that in tic douloureux, pressure at one of these points often will start a paroxysm of pain and that the patient is exceedingly timid about having them touched; but by that same token brushing the skin lightly with the finger will also start the pain and, as before emphasized, the sufferer is mighty chary of touching the face anywhere within the trigger zone. Furthermore, these points are abnormally tender in manifold painful affections about the head and face. I may instance disease of the antrum and frontal sinus, alveolar abscess, specific periostitis, glaucoma and notably tenderness at the supra-orbital notch in frontal migraine. In short, the tender points of Valleix as such are absent in tic douloureux, present in many other affections, and are a semeiologic delusion and a diagnostic snare.[25]

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[19] For exception see Case 3.

[20] I have known one or two exceptions to this rule. In a not very severe case the massage instantly starts the pain, but if persisted in may not continue to do so, and in one or two instances the patient thought that he felt more comfortable after massage. In the same way, when the patient begins to eat, the jabs of pain are frequent; but if he persists, after a little time he may eat in comfort.

[21] Patrick, Hugh T.: The Technic and Results of Deep Injections of Alcohol for Trifacial Neuralgia, THE JOURNAL A. M. A., Jan. 20, 1912, p. 155, Alge-genetic would be better.

[22] The last (sixth) edition of Oppenheim, which probably is the best existing exposition of modern neurology, contains the perfectly futile advice to remove all carious teeth that are sensitive to pressure or percussion, especially if a paroxysm can be started by such pressure or tapping. If a carious tooth, then why not a sound one? As a matter of fact, so far as I can ascertain, extraction of teeth never cures the disease.

[23] Presumably these phenomena belong with the "referred pains" so fully described by Dana and Head; but a satisfactory *explanation* is still wanting.

[24] So far as I know, Romberg (Arch. f. Psych., 1868) is the only one who categorically denies their occurrence.

### DURATION AND COURSE

Trifacial neuralgia is essentially chronic, with no tendency to recover. Dana[5] believes that sometimes it is self-limited or tends to spontaneous cure. I know of no such case, nor have I come across a case of definite cure by other than surgical means.

If the disease always is persistent it is almost equally remittent. To be sure, there are cases in which it is continuous, not a day's respite for five, ten, even twenty years; but periods of remission are the rule, and such a spontaneous remission may last for two years, five years or even more. Quiescent periods of from four to six months are very frequent. In the same case they vary in frequency and duration. On the whole, the affection tends to grow worse with time, though the stage of instantaneous jabs at infrequent intervals may last for years. On the other hand, some patients have frightful paroxysms lasting from one-half to one minute almost from the beginning. Case 2, in which the pain began when the patient was 8 years old and has continued at intervals for forty-four years without material increase, is exceptional.

I have not observed that intercurrent disease has much to do with either course or duration of trifacial neuralgia; but it has seemed to me in several instances that worry, grief or prolonged emotional tension had a most unfavorable influence.

Ordinarily the season of the year has little or nothing to do with the pain, but occasionally it shows a tendency to recur in the winter or in the summer. Most patients are free from pain at night unless the bedding happens to touch a trigger zone, but in a few of my cases the pain was worse at night. I think that the preponderance of day cases is due to the unavoidable sensory stimulus of talking, eating, currents of air, nictitation, etc. Occasionally the recumbent posture aggravates the pain, but I have seen two or three cases in which, aside from peripheral stimulus and posture, the night season seemed to have an unfavorable influence.

### TROPHIC AND VASOMOTOR MANIFESTATIONS

A great many authors, especially the older ones, have included trophic disorders in the symptomatology of facial neuralgia.[26] Hypertrophy, atrophy and deformity have been described. Vesiculation, hypertrichosis, alopecia and whitening of the hair have also been reported. I have seen none of these things. Vesiculation, of course, belongs to herpes (zoster), a quite different disease. I have observed swelling (sometimes very chronic) and atrophy as a result of operation, swelling from cantharides or other irritating applications, excoriation and wearing away of hair from friction (see below), and thickening of the skin from the same cause, but no really trophic complication. Not at all rarely patients have stated that the face swelled during attacks of pain, but I believe that this was simply a sensation or an erroneous conclusion from the redness and vascular engorgement. During the paroxysms of pain, mild vasomotor and secretory signs are often seen. In my experience these have been confined to flushing, lacrimation, salivation, nasal flow and perspiration. I have never observed paling, nor have I seen perspiration confined to the painful area or even to the painful side. Sudoration from suffering occurs in this as in other painful maladies, and I have seen it more abundant on the painful side. Flushing or obvious dilatation of vessels restricted to the region of pain is rare. When the upper and middle branches are involved, lacrimation during the pain is rather frequent, and may be present when the upper alone is affected. Increased salivary flow[27] during the paroxysms is often noted in inferior branch cases. I have not been able to satisfy myself that it was present in the interparoxysmal period, though several patients have asserted this to be the case. I think the trouble was simply that the patients neither swallowed nor expectorated saliva because these acts caused pain. In one case, during the pain there was profuse watery discharge from the nose on the affected side, and in a few other cases this symptom was present to a minor degree.

In one case the teeth fell out after the onset of neuralgia.

### THE ELEMENT OF TIC

The French name *tic douloureux*[28] or painful tic was given the disease not on account of the character of the pain but because of certain movements of the face which sometimes accompany it. Tic means an oft-repeated, abnormal movement with certain characteristics.[29] As applied to trifacial neuralgia it is a misnomer and, indeed, is being rapidly dropped by the French themselves. The motor element in facial neuralgia is non-essential and secondary. Indeed, immobility is much more characteristic than movement. In bad cases the patient not only avoids touching the face, but also holds the features so immobile as to interfere with speech and closely to simulate the facies of paralysis agitans. Even quick movements of the head and arms are avoided.

During the paroxysms of pain, various movements may be observed, none of them like tic. In a few cases one sees little fibrillary twitchings or quiverings of the facial muscles. These are exceptional in trifacial neuralgia and never occur in tic. All other movements in the former disease are purely voluntary and simply constitute the way in which the *individual* reacts to pain. Some persons contract the muscles on the painful side just as they probably would with severe toothache or if they were being cut with a knife.

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[25] Valleix described these points seventy-two years ago when almost any pain about the face was called neuralgia. His writings show that he found them in many troubles, especially in what Lévy calls *les petites névralgies:* fugitive facial pains due to tender teeth, "catching cold," "rheumatism," what I have been driven to call "the pain diathesis," etc.

[26] Bellingeri, 1818-1834; Neucourt, 1849-1854; Berard, 1835; Trousseau, 1865.

[27] André says that it is present in all cases. Notta and Valleix think it rare.

[28] André, 1756.

[29] Patrick, Hugh T.: Convulsive Tic, The Journal A. M. A., Feb. 11, 1905, p. 437; ibid., May 1, 1909; Jour. Nerv. and Ment. Dis., January, 1909.

Others immediately begin to rub the face and, as mentioned above, this may be done so frequently and so vigorously as to excoriate the skin or wear away the hair of the beard or eyebrow.[30] Some patients puff out the cheeks with the greatest possible tension, some execute chewing, tasting, pouting or sucking movements, some lick the lips, some scream, some walk the floor and some sit as rigid and immobile as one in an attack of angina pectoris. But whatever the movements may be, and some of them are very bizarre, they are just about as nearly related to tic as was the voluble profanity of one patient or were the excessive potations of another.

### COMPLICATIONS

These are of interest principally in relation to etiology and treatment but, I presume, belong to symptomatology. Some of the neurologic or neuropathic complications have been noted above. It has been thought[31] that tabetic pains in the face may simulate trifacial neuralgia or that some cases of the latter disease are of tabetic origin. I have never seen a case that I thought belonged in either category, though I have had one case of facial neuralgia in a tabetic.

Case 4.—The patient, a woman aged 49, presented all the most significant signs of tabes,[32] and for fifteen years had suffered with typical lightning pains, chiefly in the legs, but occasionally in the arms and trunk. Thirteen months before she had begun to have pain in the left face. It was limited to the infra-orbital branch of that side, came in short jabs or paroxysms, and was started by eating, talking, washing the face, etc. These "crashes" of pain recurred from five to fifteen times a day, and since the onset she had not had one whole day free from them."

In this connection, the possible relation of syphilis to facial neuralgia may be mentioned. I have had but one case in which it seemed possible that lues might be the cause, and in this case the doubt never has been settled. On the whole, syphilis has been notable by its rarity, and when present has, I believe, been a coincidence.

Next to migraine, to my mind the most interesting complications are coincident or preexisting infections and irritations about the face but, I regret to say, my statistics on this head are not sufficiently definite and extensive to be of great value. It may clearly be asserted, however, that there is no uniformity or even great preponderance of such complications. I have the impression that they are more frequent in trifacial cases than in the ordinary run of patients, but of this I cannot be sure. Pyorrhea has not been frequent.[33] Carious teeth and alveolar abscess have been frequent, but they are common affections. Ten patients had at the time, or gave a history of, antral or other sinus infection; but as the incidence of such diseases in the community is not known, no just comparison can be made. The probable unimportance of such complications is indicated by the fact that in no case have I known treatment of a sinus or tooth infection or extraction of carious or painful teeth to cure trifacial neuralgia.[34] On the other hand, treatment of neuralgia complicated by chronic sinus disease has been as successful as in uncomplicated cases. In a number of instances extraction of diseased or normal teeth has given relief for a period, generally a few days or weeks, but sometimes for a longer time. In one case filling a bicuspid cavity which apparently communicated with the dental canal was followed by cessation of the pain for two years. If mere infection in the fifth area were a causative factor, how many cases would we see due to acne pustules, boils, etc! In my experience infection or inflammation of eyes, ears, skin and throat has been too rare to merit notice.

In one case direct irritation of the inferior dental nerve apparently started the disease, which then ran a typical course. At the age of 29 the lower jaw was damaged in the extraction of a bicuspid or molar tooth. Severe paroxysmal pain immediately followed. A week or two later a surgeon who designed to remove dead bone and cut the nerve, fractured the jaw. The pain ceased for a year, and then recurred with great severity. I saw the patient at the age of 72. In the meantime she had been operated on seventeen times. History of the pain and results of operation were typical of trifacial neuralgia, and the paroxysms which I witnessed were unmistakable. She was relieved by injections of alcohol until her death from heart-disease three years later. I have always suspected that the tooth was removed not because of toothache but because of incipient neuralgia: in other words, that the neuralgia had begun before the traumatism.

In 1870 Gross[35] described a neuralgia of the toothless for which he cut away a part of the alveolar process. Later his idea was taken up and elaborated by Duplay[36] and Jarre[37] who operated in a similar way. I think that this *névralgie des édentés* is not an entity, and that the operation has now quite properly been abandoned.

That some toxic state is the cause of or is in intimate relation with trifacial neuralgia is the opinion or impression of many physicians. Ordinary investigation of my cases does not support this view. Metallic poison (especially lead) was present in none. Acute general infections were not unusually frequent, and in only one case (typhoid) immediately preceded the onset of neuralgia. Chronic alcoholism was clear in only one case, though several of the men took large quantities of whisky to relieve the pain. Rheumatism and gout were not unduly frequent, and there was no case of outspoken arthritis deformans (rheumatoid arthritis). Diabetes was observed only once. Nine patients[38] showed evidence of chronic nephritis but, considering the age of the patients, this number does not seem high. Indicanuria was not sufficiently frequent to indicate a pathologic relation.

In view of frequent statements in text-books, it is worthy of note that malaria was present in not a single case when seen and was very rare in the history; certainly not above the average in the territory tributary to Chicago.

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[30] The striking contrast of the *noli me tangere* attitude of the patient in the interparoxysmal period, with the vigorous scouring of the face the moment the pain starts, *is something seen in no other* disease.

[31] Pierret: Essai sur les symptômes céphaliques du tabes dorsalis, Thèse de Paris, 1876. Lévy: Essai sur les névralgies faciales, p. 134.

[32] This was before the time of the Wassermann, and no lumbar puncture was made. The husband had had a venereal sore prior to marriage, twenty-six years before.

[33] It goes without saying that many patients have come with foul mouths, but this was because for weeks or months they had forborne to cleanse the teeth or even rinse the mouth, every such attempt starting a paroxysm of pain.

[34] Hajek, whose book (Erkrankungen der Nebenhöhlen der Nase) is probably the best one on sinus disease, has never seen tic douloureux in such disease. Ed. 3, p. 14.

[35] Gross: A Form of Neuralgia of the Jaw-Bone Hitherto Undescribed, Am. Jour. Med. Sc., July, 1870.

[36] Duplay: Arch. gén. de méd., 1886; Gaz. d. Hôp., 1894.

[37] Jarre: Acad. de méd., 1893; Rev. de stomatol., 1894.

[38] Six had albumin, three albumin and casts and two pus and albumin, the latter presumably due to the former.

### SPECIAL SENSES

Various affections of the special senses have been described as part of trifacial neuralgia. In my opinion they do not exist. All such cases are examples of diagnostic error or mere coincidence. Especially is it to be stated that taste and smell are normal. Of still greater importance is the fact that trifacial neuralgia never causes blunting of sensation. In no case have I been able to find anesthesia or analgesia. Sensation for heat and cold has not been systematically examined. In other words, if, in a painful affection of the face, there be involvement of a special sense, either the latter is to be separately accounted for or the case is not neuralgia. If there be blunting of common sensation, it is due to organic disease, which probably also is the cause of pain, or to operation, or to thickening of the epidermis from friction or applications, or it is a hysteric symptom superadded. The last-mentioned I have never seen in facial neuralgia, but I have seen one or two cases of hysterical hyperesthesia.

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# SYPHILIS AS A PUBLIC HEALTH QUESTION *

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While March 24 is memorable in the history of tuberculosis, let me remind you that there is another day in this month which is equally memorable in the history of another world-wide disease. It was on March 3, 1905, that Schaudinn first saw *Spirochaeta pallida,* the cause of syphilis. The account of this discovery, written by Schaudinn and Hoffmann,[1] is dated April 10, 1905, exactly twenty-three years after the publication of Koch's[2] paper on the etiology of tuberculosis. This mere coincidence in dates may serve to emphasize the truer connection of Koch's labors with the recent renaissance in our knowledge of syphilis.

Syphilis has been definitely known to our civilization since the last part of the fifteenth century. In regard to its earlier history, medical historians are not yet agreed.[3] At all events, up to 1903 the disease had been studied clinically for over four hundred years and many of its symptoms and their treatment were well understood. The situation at that time has been described by Neisser, and no one was better qualified than he to describe it. Neisser[4] says that, in spite of all the work that had been done, investigation of the disease had reached a dead level. The cause was unknown and animal experimentation was apparently impossible. No advances were being made because the methods which had revealed the secrets of other infectious diseases were not being applied to syphilis.

In 1903, however, Metchnikoff and Roux[5] showed conclusively that the disease could be transmitted to the lower animals and thus opened up the rich field of animal experimentation. In 1905 Schaudinn discovered the cause and thus made possible the certain identification of the disease as an entity. In 1906, Wassermann, Neisser and Bruck[6] introduced the indirect method of diagnosis by the serum reaction, which reveals the presence of the disease when all outward symptoms have disappeared. In 1910 Ehrlich[7] gave to the world salvarsan, a specific, synthetic spirocheticide, the result of many years of experiment. In 1911 Noguchi[8] cultivated *Spirochaeta pallida* in pure culture and made his remarkable product, luetin, which detects the disease in its most obscure forms. In 1913 Noguchi[9] demonstrated *Spirochaeta pallida* in the brain of paretics and in the cord of a tabetic, thus bringing these baffling conditions into simple relation with the rest of the disease and rounding out our conceptions of the whole infection.

As we look back on the unparalleled achievements of these ten years, we see that these results have all come, not from the clinic, but from the laboratory; not from professional syphilologists and psychiatrists, but from pathologists, parasitologists, serologists and experimenters. I make this point, not to try to belittle the work of the clinician, because, after all, he is the man on the firing-line, but to emphasize the comprehensive method of reconnoiter and the strategic method of attack. This is the etiologic method; to find the cause of an infectious disease in the specific lesions; to isolate and to study the parasite in pure culture; to introduce it into a lower animal and to observe the reactions of the tissues and the body fluids to the invading organism or its products; to trace the parasite through the different parts of the body; to determine how it leaves the body and passes from one person to another; to try to kill the parasite when and where it is most vulnerable, by disinfectants, internal or external.

Whose method is this but Koch's? To him more than to any one man or set of men we are indebted for the correct way to study infectious diseases and, therefore, it is only tracing the swelling stream of our knowledge of syphilis to its source when we meet "to honor the memory of Robert Koch and to recall his eminent services to the cause of public health."

What have been the practical results of these services so far, and what is the outlook for the future? Popular warfare on these parasites is the order of the day. Our age has already been characterized by the medical historian as one of social and preventive medicine.[10] Society itself is considered a patient and members of society in general are more or less self-constituted physicians. This attitude is due directly to definite advances in the science and art of medicine. Following the increase in our knowledge of tuberculosis, we have for a number of years seen a splendid attack on the disease, in which institutes like this one are most effective agencies. As a result of the advances in our knowledge of syphilis, the popular attack on this disease has already begun, and, from the purely scientific point of view, we are in a much better position to attack syphilis than we are to attack tuberculosis. In most early cases we can ascertain how, when and where the disease was contracted. We can identify it on its earliest manifestation and we can cut it short by radical treatment. In the later stages we can make a diagnosis of its most obscure forms and can control its course in many instances, even if we cannot make a complete cure. We have effective methods of prevention.

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* Read at the Phipps Institute, University of Pennsylvania, Department of Medicine, Philadelphia, March 24, 1914.

1. Schaudinn: Arb. a. d. k. Gsndhtsamte, 1905, xxii, 527.
2. Koch: Berl. klin. Wchnschr., 1882, xix, 221.
3. Garrison: History of Medicine, W. B. Saunders Company, Philadelphia, 1913, p. 128.
4. Neisser: Die experimentelle Syphilisforschung, 1906, Julius Springer, Berlin, 1.
5. Metchnikoff and Roux: Ann. de l'Inst. Pasteur, 1903, p. 809.
6. Wassermann, Neisser and Bruck: Deutsch. med. Wchnschr., *1906, xxxii, 745.*
7. Ehrlich and Hata: Die experimentelle Chemotherapie der Spirillosen, 1910, Julius Springer, Berlin.
8. Noguchi: Jour. Exper. Med., 1911, 99, 557.
9. Noguchi and Moore: Jour. Exper. Med., 1913, xvii, 232.
10. Garrison: History of Medicine, 1913, p. 594.

With all this wealth of means at hand, it might seem a simple matter to put them into effect against the disease, and so it is in individual or selected cases. But when we come to the question of their general application we encounter an unusual obstacle which cannot be ignored. The extreme medical position is of course that syphilis should be attacked in the same way as other infectious diseases, such as tuberculosis, typhoid fever or diphtheria, by detection and removal of the sources of infection, by early diagnosis, isolation, prompt treatment and by various methods of protection. But this position is attacked by many social reformers, who say that the medical program is a failure in practice and that it tends to legalize immorality. The first objection concerns us professionally and the second one concerns us as members of society, because, as I take it, we are not indifferent to the moral welfare of society.

In regard to the strictly medical and hygienic program, let me say again, that, from the purely scientific point of view, we are in an excellent position to control syphilis. If we could have a free hand to apply well-known medical measures, we could appreciably reduce the amount of the disease. If the full force of our sanitary organizations were directed against syphilis as they would be against an invasion of cholera or plague, who can say that the disease would not be greatly restricted? To deny this is to ignore the splendid triumphs of preventive medicine in other diseases. Yet, as was said, some moralists[11] seem to take particular delight in pointing out the failure of preventive acts and regulations. No doubt these measures have more or less failed of their object, but they have failed, not because they are wrong in scientific principle, but because they have not been carried out thoroughly. When preventive measures are carried out thoroughly, as they can be and have been under military jurisdiction, the results are just as certain as they are in any other infectious disease, just as certain as any other natural consequence.[12]

But can these measures be carried out generally? Not in their entirety. To carry out these measures logically we must, indeed, legalize immorality and also invade personal liberty to such an extent that society would rebel. In other words, this disease is on a somewhat different footing from tuberculosis, diphtheria and typhoid fever. Syphilis is essentially a sexual disease and sexual relationships cannot be treated altogether like the other relationships of life. For example, our records in the Army show that only 6 or 7 per cent. of primary infections are extragenital and that only 1.5 per cent. are, as we say, in line of duty; that is, not the result of the patient's own misconduct. In women, the percentage of innocent infection is much higher, Fournier[13] says from 20 to 25 per cent., but even in these cases the disease is acquired sexually, so that extragenital infections, such as have been reported by Bulkeley and Scheuer[14] as amounting to over twenty thousand cases, really form a comparatively small part of the total amount.

The endemic center of the disease is therefore in the irregular sexual life of the race, and a direct medical attack on the source of the infection is out of the question. It will be a long day before a sanitary map of a town will be made with dots for the cases of syphilis and placards for infected houses, and before sanitary inspectors set to work to trace down each infection and to examine contacts, etc. Nor would we wish to see this day if it were realizable, because it would involve too many social questions. But if a strictly medical program is impracticable, much can be done by a modified medical program. Even if society cannot recognize its enemy, it can protect itself in many ways.

Let us examine for a moment the alternative program of education and reform. We are in the midst of this movement now. On every hand the subject is being discussed. Plays have been written on it, eugenic societies are active, charitable organizations are concerned, laws have been passed and courses given in schools. Some of these activities are admirable, and especially where medical measures are involved, they are already producing results. But in some quarters the agitation has been overdone and already a reaction may be felt. Some enthusiasts have gone beyond the bounds of decency in their discussion of the subject. They seem to think that the naked truth has some special virtue and if sufficiently paraded will automatically settle the question. I see no warrant for any such position. The deeper we go into human nature the nearer we approach the savage, and the nearer we approach the savage the farther we go from morality and manners. If the uplifters point out the failure of sanitary measures, are they prepared to show any extraordinary practical results in the way of education and reform? If they decry sanitary measures as making for immorality, are they prepared to say that the activities of some of their members do not make for indecency? There may well be some things worse than syphilis; one may be legalized immorality; another may be tolerated indecency.

In brief, the subject of syphilis as a public health matter is an immense problem and calls for the cooperation of many agencies. It is not merely a medical problem, or merely a question of education and reform. The indications seem to be for us as physicians to find out what can be done in a medical way, and to stand ready to push purely medical means when they are practicable and to realize our limitations when such means are not practicable; in the homely phrase, to do the best we can.

## PREVALENCE

If it is neither practicable nor desirable to put into effect a rigid sanitary program, what are the possibilities of a modified sanitary program? The first question which naturally arises is, What is the prevalence of the disease in a given locality? No definite answer can be given to this question for most localities, and therefore we have, at the outset, a most pertinent and feasible field of inquiry. Time-honored estimates have been made, such as 12 per cent. for the adult population of Berlin by Erb, 15 per cent. in Paris by Fournier, and 12 per cent. in London. These figures really tell us little except that the disease is sufficiently prevalent.

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[11] Flexner: Prostitution in Europe, Century Company, New York, 1913.

[12] Munson: Military Hygiene, William Wood & Co., New York, 1901, p. 836.

[13] Fournier: Treatment and Prophylaxis of Syphilis, Rebman Co., New York.

[14] Scheuer: Die Syphilis der Unschuldigen, Rebman Co., New York, 1910, p. 14.

What we need is an accurate statement of the amount of disease among the various groups of our population, such as children of different social position, men and women employed in various occupations, etc. This information is not easy to obtain by direct examination in most cases, but fortunately in the Wassermann reaction we have a means of obtaining a certain amount of information which can be applied on a large scale and with little offense. Apparently no better start can be made in a public health way than the initiation of Wassermann reaction surveys. Already municipal laboratories in several cities are making Wassermann reactions and various hospital laboratories have been so engaged for some time. These laboratories need not stop at the mere examination of specimens sent in, but should be the center for extensive records on various groups of the population. As examples of the possibilities, one can mention examinations of all the members of infected families, such as have recently been reported by Post[15] of Boston; surveys of all admissions to hospitals, jails, almshouses, etc., and in time these examinations can be extended to civil services, to the police and fire departments, to railroad employees and so on. Of course the information gained in this way is only partial and must be interpreted by experienced physicians. A single negative Wassermann reaction, for example, does not rule out syphilis by any means. The results of these surveys will certainly be too low, because the reaction does not pick out 100 per cent. of cases in any stage of the disease. It is also subject to natural fluctuations and is much influenced by treatment and also by the use of alcohol.[16] The results should therefore be supplemented by other methods of examination when possible. It is hardly necessary to say that this sort of work cannot be done without moral and financial support. Equipment is needed and practically one man's whole time must be devoted to the work if any considerable amount of information is to be obtained.

Most of the observations to date have been made on hospital cases, but the observations are already beginning to extend out into the general population. In regard to hospital cases, it has been shown that a large number are syphilitic, while usually entered under some other diagnosis. Thus out of 111 cases admitted to the Children's Hospital in Boston, Lucas[17] found 31 per cent. infected. Churchill,[18] in a hospital in Chicago, found that of 102 children, thirty, or nearly one in three, were infected, although none were admitted for syphilis. In New York, Holt[19] found a much smaller number, 6 per cent. among more acute cases. In Glasgow, Browning[20] reports positive findings in 14 per cent. of children, and a much higher percentage in defective children. In Australia, in a series of 100 obstetric cases in a public hospital, Piper,[21] by the Wassermann reaction, found 16 per cent. infected, and obtained confirmatory clinical evidence in most cases. Among the negro insane in Alabama, of over seven hundred male and female patients, Ivey[22] found 26 per cent. infected; one-half of the infections were latent. These few examples show how this method may be applied to large series of cases under diverse conditions. In regard to the endemic source of infection, Browning has recently found 100 per cent. of infection among 104 prostitutes, and among 109 men, women and children classed as tramps, 100 per cent. of infection.

The Army represents a selected class of the population at an age most exposed to infection. You may have heard something about venereal diseases in the Army and you may have received a false impression about their prevalence. The reason you hear about these diseases is that we have some knowledge about their prevalence among soldiers in contrast to our complete ignorance of the amount of disease in the population from which soldiers are drawn. In the Army the same medical supervision and discipline are used in treating and caring for syphilis that have demonstrated the wonderful value of antityphoid inoculation, and the conditions are favorable for obtaining information. In the Army as a whole the rate for syphilis for 1909 and 1910 was 2.5 per cent. In 1911 an interesting change occurred. The rate rose to 4.5 per cent. During this year the Wassermann reaction was in quite general use and salvarsan was introduced and many latent cases were detected or voluntarily applied for treatment.[23] In 1912 the rate dropped to 2.5 per cent. again. In one regiment of 950 men, Captain Reasoner[24] has made a Wassermann survey and he found forty-eight cases of syphilis, or about 5 per cent. of the command. Twelve cases gave no history of the disease, while eight with a history gave a negative reaction. Captain Reasoner believes 7 per cent. is a conservative estimate of all cases. In another regiment, Captain Bartlett made a careful study covering more than a year and found about 10 per cent. of the command infected. Regiments undoubtedly vary in degree of infection, depending on personnel, place of service, etc., but for the Army as a whole the rate seems to be something over 5 per cent. As we shall see later, this percentage is being reduced. No exact statistics are available as to the amount of syphilis among men coming to recruiting stations. Such information would be of great value from many points of view. We already know that venereal disease is the cause of rejection of more men than any other condition. The question of routine Wassermann reactions on recruits has been considered, but, as this measure would require about thirty thousand reactions a year, it has not yet been feasible. Since the adoption of the test for the Army, however, by Captain Craig and other medical officers, a great many reactions have been made in the Army laboratories on suspects among recruits and in this way many cases of syphilis are excluded from the service. It is probable that in a short time a survey of a

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15. Post: Boston Med. and Surg. Jour., 1914, clxx, 113.
16. Craig: Bull. 3, Surgeon General's Office, 1913.
17. Lucas: Boston Med. and Surg. Jour., 1913, clxix, 423.
18. Churchill: Tr. Am. Pediat. Soc., 1912, xxiv, 149.
19. Holt: Am. Jour. Obst., 1913, lxvii, 1228.
20. Browning: Brit. Med. Jour., 1914, i, 77.
21. Piper: Case of Cirrhosis of Liver with Recurring Ascites, Austral Med. Jour., 1913, new series, ii, 916.
22. Ivey: Med. Rec., New York, 1913, lxxv, 712.
23. Surgeon General's Rep., Bull. 3, Surgeon General's Office, 1913, p. 110.
24. Reasoner: Mil. Surgeon, 1910, xxvii, 189.

certain number of men coming to recruiting stations will be available.

Granted that by a Wassermann survey and other records we come to have a fairly accurate knowledge of the prevalence of the disease in a certain group of the population, what is to be done about it? Possibly the first impulse is to ostracize all syphilitics. But of course this move would not solve the problem, even if it were possible; but it is not even possible. Recently, in New York, a policeman was discharged because he had syphilis. He appealed to the courts, and as no effort was made to prove that the disease was acquired by his own misconduct, the court reinstated him with costs.[25] The mere fact that a man has syphilis is evidently not enough to warrant dismissal, but, in view of the nature of the disease, the burden of proof of an innocent infection should be put on the patient and, if this is not forthcoming, he should be penalized by loss of pay for any absence due to this disease. In candidates for various positions, tests for syphilis can be included in the physical examination and the presence of syphilis can be made cause for rejection, as is now the case in several cities. In this way an additional stamp of disapproval can fairly be put on the disease. As was said, however, these repressive measures do not really solve the problem because the disease remains and rejected candidates tend to swell the mass of discontent in society.

## TREATMENT

This consideration brings us to the question of treatment, and here we find another field in which city governments and hospitals can do a great deal. The position of most hospitals toward syphilis needs revision. Most hospitals refuse to admit patients suffering from the early symptoms of the disease; the same hospitals welcome patients with aortic insufficiency, aortitis, aneurysm. optic neuritis, locomotor ataxia, etc., and yet these conditions may be just as much syphilis as a chancre or a secondary eruption. In other words, most hospitals admit patients when they get into such shape that little is to be expected from treatment, and they refuse to treat cases at a time when a great deal of good can be done. The attitude of hospitals was perhaps partly justifiable in the past, but with our present means of treating infectious lesions and with the awakened public interest, it would seem that hospitals are not doing their full duty to their clientele unless they make provision for treating the early stages of syphilis.

Scientifically, the most hopeful outcome of all the recent work in syphilis is the possibility of diagnosing the disease in the primary stage and of making an immediate and radical cure by the combination of salvarsan and mercury. Abortive treatment of the disease in the primary stage has been the dream of syphilologists for many years, but nearly all attempts have failed, or, in case of the few so-called successful instances, the diagnosis has been questioned. But with our present sure method of diagnosis by finding *Spirochaeta pallida* and using salvarsan, which is a more specific remedy than we have hitherto possessed, the dream has at last come true and this method of handling syphilis rests on a firm basis. It is something new and revolutionary. The best series of cases I have seen to illustrate this point has been recently reported by Boas[26] from Copenhagen and is summarized in Table 1. The treatment in all cases was practically the same, that is, two intravenous injections of salvarsan and fifty inunctions of 3 gm. of mercury.

TABLE 1.—RESULTS FROM TREATMENT WITH SALVARSAN AND MERCURY

| Lesions | Cases | Months Observed | No Relapse | Relapse | Per Cent. |
|---|---|---|---|---|---|
| Chancre (Sp. + W. R. —) ...... | 30 | 2 to 25 | 29 | 1 | 3 |
| Chancre (W. R. —) ........... | 30 | 2 to 25 | 26 | 4 | 13 |
| Fresh Secondaries ............. | 62 | 2 to 19 | 48 | 14 | 22 |

It will be seen that the percentage of relapse rises steadily as the disease goes on. As a control, a number of cases were treated with the same amount of mercury alone, as appears in Table 2.

TABLE 2.—CASES TREATED WITH MERCURY ALONE

| Lesions | Cases | Months Observed | No Relapse | Relapse | Per Cent. |
|---|---|---|---|---|---|
| Chancre (Sp. + W. R. —) ..... | 8 | 2 to 5 | 0 | 8 | 100 |
| Chancre (W. R. —) ........... | 13 | 1 to 6 | 0 | 13 | 100 |
| Fresh secondaries ............ | 72 | 1 to 51 | 4 | 68 | 94 |

These cases illustrate the usual failure of mercury to abort the disease, and the four cases out of ninety-three which did not relapse probably passed into the so-called latent stage.

In the Army we have records of similar results. They are not very numerous as yet; partly because we are just beginning to work on a definite plan on a large scale and partly because field service conditions have interfered with continued observation in many cases. But we have had some encouragement and believe that we are on the right track.

The question may arise, Why is it necessary to use mercury at all if salvarsan really is the important factor in the results? The answer is, first, that the results of the combined treatment are better than those obtained by the use of salvarsan alone and, second, that if relapses occur after salvarsan alone, they are apt to be explosive and may do great damage if the nervous system is already infected, while if they occur after mercury, they are more gradual and give more warning.

Yet comparatively few persons receive the benefit of this great opportunity. Venereal sores are still powdered or cauterized and allowed to run on without a definite diagnosis. The same situation which has been so scored in the case of cancer prevails in the handling of syphilitics. Early diagnosis is neglected and radical treatment is substituted by palliation. The diagnosis of syphilis can be made on the first day the disease is noticed, in a few minutes and with no great amount of equipment; but very few dispensaries ever make the attempt. In 1903 Swift published figures collected in New York on eighteen dispensaries which treat these cases. Routine examinations for spirochetes were made in only five; only five had dark-field microscopes, and only five treated cases early.[27] Surely such a situation is indefensible either on scientific or social grounds. There is no question of morality here: the damage has been done and the cases are handled after a fashion—but not *secundum artem*. The attempt to distinguish a syphilitic from a non-syphilitic sore by clinical appearances is in the same class with an attempt to distinguish a fracture and a sprain without the aid of the Roentgen ray. Sometimes the attempt is necessary and it is often successful. But, as a routine matter, why should we guess when we can know? And more important still, why should we lose critical time when we can act immediately? The practice of cauterizing or powdering venereal sores before a positive diagnosis is made is worse than treating a case of fever with quinin before the malarial parasite is found, because if a sore is syphilitic, the treatment not only lessens the chance of finding the spirochetes, but has no effect on the disease. The discharge from all venereal sores should be examined microscopically at the earliest moment before any local treatment is used. Facilities for such an examination should be available in municipal and hospital services.

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[25] Having Syphilis not Conduct Unbecoming an Officer, Medicolegal, THE JOURNAL A. M. A., 1914, lxii, 482.

[26] Boas: München. med. Wchnschr., 1913, lx, 2620.

[27] Swift: New York Med. Jour., 1913, xcvii, 1012.

In our series, over 50 per cent. of venereal sores have been found to be syphilitic and many of these could not be diagnosed by clinical signs or by blood examination. An analysis of these sores shows that the spirochetes were found at a time when the blood was negative on an average of seven days, the spirochetes were present and the blood was positive on an average of eighteen days and the spirochetes were not found but the blood was positive in twenty-four days. These periods mark the general invasion of the body and each day makes radical treatment less certain. We should therefore concentrate our efforts on early diagnosis and radical treatment. No disease offers more encouraging or fascinating work along these lines. No better opportunity to practice scientific medicine exists to-day than the opportunity to pit our skill against the pertinacity of *Spirochaeta pallida*. The requisites are the dark-field microscope and salvarsan and mercury. This armamentarium costs something and no municipality or hospital can expect to have results in this work without paying something for them.

### STANDARD OF CURE

The introduction of etiologic tests for the presence of living spirochetes somewhere in the body have altered our whole conception about the efficiency of the treatment of syphilis. Only a few years ago it was taught that mercury was a specific, and the patient was often justly blamed for unsatisfactory results because he did not follow the prescribed course of treatment. But with the introduction of our modern tests we have come to realize that mercury, even when taken in strict accordance with rules, probably cures less than 50 per cent. of cases. The most striking example of the failure of the thorough treatment with mercury is seen in the subsequent development of tabes and paresis, which, as was said, we now know are due to the actual presence of the spirochetes in the brain and cord. But there are other forms of syphilis, especially the vascular form, in which the results are the same. Even with the addition of salvarsan we now recognize that there are many old cases that are practically incurable. This does not mean that the disease cannot be controlled; but it does mean that the spirochetes are still at work and may be transmitted to the next generation.

The question of establishing a standard of cure has been correspondingly simplified by these same etiologic tests. In the Army we believe we have unusual opportunities for following up cases and for observing the results of treatment. Each case of syphilis, therefore, is recorded in a register, in which the treatment and Wassermann results are entered and which follows the patient until cure or discharge. By this means we are gathering a great deal of information. Of course many cases are not followed up as carefully as they might be, but in general the syphilis situation is much better than it has been as a result of these records. Our standard of cure is as follows: One year without treatment, without any suspicious clinical symptoms, with several negative Wassermann reactions and no positive ones and at the end of the year a negative provocative Wassermann reaction or negative luetin test. If a man fulfils all these requirements we consider the case closed. If possible, it would be better to add an examination of the spinal fluid, because in some few cases a local infection of the nervous system is not revealed even by these tests, but for the present we would be satisfied if the other tests were negative in the bulk of patients. The difficulty of attaining this standard is seen in the relatively few cases we have which have fulfilled all the conditions. Thus only about a hundred cases out of several thousand treated have as yet satisfied the requirements, although the number is increasing now that we have a more definite plan of treatment.

If we have had only this partial success in the Army where our patients are under direct control, we cannot expect as much in every-day practice until this practice becomes more definite and systematic. Philip[28] has recently made a study of 1,433 cases infected in four years in Hamburg, and of these 4 per cent. took no treatment, 63 per cent. took only one course and 22 per cent. only two courses, so that a total of 89 per cent. was insufficiently treated. It seems possible that the follow-up system used in the tuberculosis campaign and in social service could be used to advantage in keeping track of patients, and this measure, together with the establishment of night clinics, may aid in handling the situation.

### PREVENTION

In preventing the spread of the disease, general hygienic measures are of some slight avail, such as the abolishing of the common drinking-cup and towel, and the avoidance of promiscuous kissing. A classic example of the terrible consequences of a kissing game has been reported by Dr. Schamberg[29] of this city, in which seven girls were infected at a kissing party by a young man. Medical students, too, are in need of instructions in care of handling syphilis because the disease is one of the great occupational diseases for the doctor. Every physician who treats syphilis knows of a number of cases among doctors and dentists who have been infected by handling syphilitics. I have recently had personal care of four such cases. These infections occur chiefly when one does not suspect any danger. In dealing with a known infectious case, the ordinary methods of asepsis and antisepsis are entirely sufficient.

A more effective preventive measure is along the line of negative eugenics, that is, the prevention of the infection of families by the marriage of syphilitics. Whatever controversy there may be about eugenics or of laws on the subject, it is only common sense to prevent the marriage of such infected persons. Here the responsibility rests primarily on the physician and on the parents. The standard for marriage in my opinion should be the same as the standard for cure as given above. No doubt either parent may have a local infection in some part of the body which will not involve the offspring. But we have no way to distinguish these cases.

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[28] Philip: München. med. Wchnschr., 1914, lxi, 245.

[29] Schamberg, Jay F.: An Epidemic of Chancres of the Lip from Kissing, The Journal A. M. A., 1911, lvii, 783.

The decisive time and place to apply preventive measures is, of course, after sexual contact with infected persons, and this procedure can be made effective. It has been put on a firm experimental basis by Metchnikoff in the use of 30 per cent. calomel ointment. Probably the best demonstration of its value has been given by the Army and Navy services. The attitude in the service is this: No man has a right to deprive the government of his services and become a burden on the sick report through his own misconduct. He is therefore told that if he exposes himself to infectious diseases he must take measures to prevent becoming infected. Men returning to the garrison are ordered to report at the hospital if they have been exposed to venereal diseases and to receive a prophylactic treatment. This consists of a thorough washing, an irrigation of the urethra with argyrol solution to prevent gonorrhea and an application of 30 per cent. calomel in benzoinated lard to prevent syphilis. If a man develops disease without having used the prophylactic, he is punishable for disobeying orders. And in any case his pay is stopped while he is sick as a result of alcoholism or venereal disease, and it is now proposed in Congress to require him to make good the time lost.

That these measures can be made successful has been definitely demonstrated many times. One of the best illustrations is seen in the results recently obtained by Major Howard at the recruit depot at Jefferson Barracks, where ten thousand recruits are handled a year. In a series of 3,800 exposures, only one case of syphilis developed. Before the method was introduced the ratio of venereal disease was 227 per thousand; after introduction, among those who used the prophylactic, eighteen per thousand. Major Howard[30] says: "The system is entirely practicable as demonstrated by a full year's experience at Jefferson Barracks." Of course there are a great many places where the system may fail; the prophylactic may be used too late or not thoroughly enough. In one case the glans and prepuce were thoroughly disinfected, but the base of the organ was neglected and a chancre developed there. The results vary greatly with the interest of company and medical officers. The results for the whole Army, however, are encouraging. During the last year in which these measures have been used the rate for all venereal disease has fallen from 115 per thousand to eighty-five per thousand; for syphilis from twenty-five to twenty per thousand. It is difficult to say exactly how much weight the loss of pay has in making men more careful, but it seems likely that the prophylactic is the most important factor. The campaign which the Surgeon-General's Office has started on venereal diseases cannot in the nature of things be as successful as our campaign against typhoid fever; but the results are along the same lines. The more clearly it is understood that syphilis is a preventable disease, the fairer it is to penalize those who contract it. In regard to the morality of these measures, we seem to have an excellent precedent in the practice of circumcision. The strongest argument for this practice has always been the one based on prophylaxis of disease. The operation is very commonly practiced and it is one of the rites of the race which has given the world its greatest moral teachers.

A debatable subject might arise if we had any prophylactic vaccine against the disease. But we have none and we have no prospect of any, because of the nature of the disease and lack of any acquired immunity to a second attack. All experimental attempts in this direction have failed. Salvarsan also has not robbed the disease of its terrors as was at first feared in some quarters. In spite of all our advances, syphilis remains as a sign-post for the straight and narrow road.

In conclusion, notwithstanding all the complex questions raised by this disease, let us hope that the labors of Metchnikoff, Schaudinn, Ehrlich, Noguchi and many others have not been in vain, and that science and morality can work together for the common good.

### SUMMARY

1. The application of Koch's etiologic method for the study of infectious diseases, to syphilis, has greatly increased our knowledge of the disease during the last ten years.
2. A strictly medical campaign against syphilis is neither practicable nor desirable. A modified medical campaign both practicable and necessary.
3. The prevalence of the disease is still largely a matter of conjecture, and information on this point is to be obtained largely by Wassermann reaction surveys, carried out by municipal and hospital laboratories.
4. The most hopeful outcome of all the recent work on syphilis is the possibility of early diagnosis and radical cure. The possibility is still largely unrealized on account of lack of facilities in dispensaries and hospitals.
5. Our ideas about the efficiency of treatment and about a standard of cure are much more definite than heretofore, as a result of the application of etiologic tests.
6. Syphilis in most cases is a preventable disease, and this fact is an additional warrant for penalizing those who contract it.

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# CHAPARRO AMARGOSA IN THE TREATMENT OF AMEBIC DYSENTERY

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In recent years much has been written on the treatment of amebic dysentery. Perhaps no subject in all therapeutics has received such a diversified therapy as has this. The fact that so many drugs have been recommended is a potent proof of the efficacy of none of them. Ipecac is the drug that has been most widely used, and recently it has been supplanted by emetin (alkaloid). It is the purpose of this paper to call attention to chaparro amargosa as an amebicide.

My interest in the treatment of dysentery began with a case I saw with Dr. J. W. Nixon of Gonzales, Tex., about two years ago. At his suggestion, chaparro amargosa was given to the patient with the most happy results. Since this time I have used it in ten cases and am sure that it is the most efficient remedy we have at present for treating amebic dysentery, unless we except emetin.

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[30] Howard: Bull. 2, Surgeon General's Office, 1913, p. 42.

We are indebted to the Mexicans for the name "chaparro amargosa." It means "bitter bush." It has been a domestic remedy among the Mexicans of Southwest Texas and Mexico for many years. It is said that General Zachary Taylor's soldiers learned its secrets during the Mexican War and profited no little from its use. Botanically, it is classified as *Castela nicholsoni,* Hook, and belongs to the *Simarubaceae,* of which family quassia and simaruba are also members. Putegnat[1] states that "it is hardly to be distinguished from the entire-leaved plants of the *Simarubaceae,*" but places it in "the natural order *Ochnaceae.*"

The first attempt to bring this remedy before the profession was made by Putegnat[1] of Brownsville, Tex., in 1883. He studied the plant botanically and chemically, recommended it as an antiperiodic and incidentally mentioned that it had been used in cases of diarrhea and dysentery. Nixon[2] of Gonzales, in 1893, emphasized the antidysenteric properties of the drug and established firmly its therapeutic value. He reported three illustrative cases and stated that he had had many others. Knox,[3] one year later, published a personal experience and felt no hesitancy in attributing his recovery to chaparro amargosa. West[4] of Galveston made a preliminary report on seven cases in 1895, using the fluidextract. In his words, "in every case under its use the frequency of the stools has diminished, the tormina and tenesmus subsided, the blood, mucus and ameba disappeared from the dejections. The patients left the hospital apparently cured after three or four weeks of treatment." Crittenden,[5] the following year, cured a case of intractable dysentery of three years' standing by using fluidextract of chaparro amargosa. From 1896 to 1903 the literature to which I have access is surprisingly free from anything on this subject. Indeed, the articles which I have named are all that can be found. It is not mentioned in the *Index-Catalogue of the Surgeon-General's Library,* and there is no reference to it in the *Index Medicus.*

Chaparro amargosa is a small thorny bush, which is indigenous to Southwest Texas and Northern Mexico, growing on thin, rocky mesquite or post-oak land and having an especial tendency to be found on small, rocky hills. It grows to be a bush 2 or 3 feet in height, its size depending on the comparative richness of the soil on which it is found. Its leaves are small and lanceolate, its flowers pink and very small. The matured fruit is a red berry which is about the size of a pea.

All parts of the plant, from the root to the berry, possess the characteristic bitter taste and medicinal properties. It is on the market as a fluidextract, the dose being from 1 to 3 fluidrams before meals. My experience has been confined principally to the use of the infusion, which is prepared by boiling the plant — roots, branches, foliage and fruit — in water for from thirty to sixty minutes. No definite weight can be used, as the weight of the plant will vary with the seasons and with its dryness. The infusion should have the color of moderately weak tea.

My routine treatment is as follows: The patient is kept in bed if practicable; the diet is restricted to liquids and semisolid articles; an ounce of magnesium sulphate is given three or four hours before treatment is begun and repeated every two or three days; 6 or 8 ounces of the infusion are given by mouth half an hour before each meal and at bedtime; rectal enemas of from 500 to 2,000 c.c. of the infusion are given in the knee-chest posture twice daily, and the patient is instructed to maintain this position for five or ten minutes, and afterward to retain the solution as long as possible. The length of time the fluid will be retained varies with the irritability of the rectum and the persistence of the patient; in some it will be only a few minutes, while others will be able to retain it indefinitely. If the large bowel contains fecal matter it is well to irrigate it with normal saline preliminary to giving the enemas. It is advisable to continue the treatment for a week or two after the subsidence of all symptoms.

The infusion as well as the fluidextract has an intensely bitter taste, but it is a "clean bitter," and no difficulty is experienced by patients in taking it. The bitter taste is easily overcome by eating a piece of bread or drinking a little coffee if necessary. As a matter of fact, the bitter taste is not undesirable, because of its tonic and stomachic effect. No nausea or other untoward symptoms have followed the administration of this drug and so far as is determined it exerts no detrimental influence on the human organism, even in large doses.

The active principle of chaparro amargosa has not been satisfactorily isolated. Putegnat[1] extracted an amorphous bitter principle to which he gave the name "amargosin"; but his work has not been confirmed. Tannin is not responsible for the action of the drug, as the detannated fluidextract is no less potent than the original fluidextract. Probably the therapeutic action depends on an alkaloid or a glucosid and this, when once isolated, may possibly be administered hypodermically.

I give the results of a few experimental observations to show the amebicidal action of chaparro amargosa: Under the microscope, 1 : 10,000 dilution of the detannated fluidextract at body temperature caused all *Entamoebae histolyticae* to cease moving instantly and to assume a spherical shape with sharp differentiation of ectoplasm and endoplasm; 1 : 100,000 dilution required from thirty to sixty seconds to accomplish the same result, and 1 : 1,000,000 from one to three minutes.

This drug is not indicated in ordinary diarrhea and is probably without action in other parasitic intestinal infections. One case of *Strongyloides intestinalis,* one of *Balantidium coli* and three of *Cercomonas intestinalis* were uninfluenced by it. One case of the last-named was apparently cured; this patient gave a history typical of amebic dysentery; but as no amebas could be found, it was not so classified.

This communication is based on the treatment of ten cases. Part of these were seen with other physicians, to whom I know take the opportunity to express my indebtedness.

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[1] Putegnat, J. L., Jr.: Castela Nicholsoni; Its Characteristics and Proximate Analysis, New Remedies, New York, 1883, xii, p. 102.

[2] Nixon, J. W.: Chaparro Amargosa: A New Treatment for Dysentery, Texas Sanitarian, August, 1893.

[3] Knox, R. T.: Chaparro Amargosa: A New Treatment for Dysentery, Texas Med. Jour., November, 1894.

[4] West, H. A.: Discussion of paper by Ashton, Tr. State Med. Assn. of Texas, Galveston, 1895, p. 124.

[5] Crittenden, W. I.: Chaparro Amargosa in the Treatment of Chronic Dysentery, Virginia Med. Jour., June, 1896.

## REPORT OF CASES

Case 1.—*History*.—O. V., farmer, aged 43, first seen Oct. 6, 1911, was having the first attack. The onset occurred two months previously with frequent and bloody movements and pain in the abdomen. The patient was in bed for three weeks. The symptoms decreased for three weeks, but became troublesome ten days before the patient was seen, when there were six or eight bloody stools a day, tenesmus and pain in the rectum. The appetite was poor, and there was nausea but no vomiting. The patient had lost 40 pounds in weight. He had taken various medicines without effect.

*Physical Examination*.—The patient looks ill; he is very anemic. The temperature is 100, the pulse 96. The general examination is negative. Proctoscopic examination is negative except for slight congestion of the rectal mucosa. The stools are mostly blood and mucus and have a characteristic "flesh-like" odor. Many characteristic *Entamoebae histolyticae* are present.

*Treatment and Course*.—The day after treatment was begun, the patient felt much better and had only one movement, which contained mucus but no blood. There were no living amebas. One clump of what appeared to be dead amebas was seen. At the end of a week the patient went home free from all symptoms. There had been no recurrence two years later.

Case 2.—H. L. R., farmer, aged 55, first seen Nov. 13, 1911, was having the second attack. The first attack lasted four months. The present trouble had continued three months, with from two to twelve bowel movements a day. There were extreme abdominal pain and rectal tenesmus. The patient had lost 20 pounds in weight. The symptoms were not affected by silver nitrate irrigations or starch and laudanum enemas.

*Physical Examination*.—The patient is very thin and anemic. The temperature is 99, the pulse 84. The general examination is negative. In the left iliac fossa one can feel the sigmoid as a tender elongated mass. No ulcers can be seen in the rectum. The stools are semisolid, yellow and flecked with blood and mucus. Moderate numbers of motile *Entamoebae histolyticae* are seen.

*Treatment and Course*.—This man was sent to the hospital where he spent a very restless night; ½ grain of morphin hypodermically was necessary to control the pain. He threatened to go home unless something was done. Chaparro amargosa was begun the following morning and by evening he felt much easier and slept all night. There were no stools until the second day, and then no living organisms could be found. On the morning of the second day the patient was found smoking a cigarette and said that he felt better than he had for months. He went home at the end of a week, feeling well and having gained 5 pounds. A letter four months later stated that he had gained 26 pounds in weight and that he was free from all symptoms. There had been no return two years later.

Case 3.—D. F., aged 45, a refugee from Mexico, first seen Dec. 6, 1911, had had four attacks of dysentery in the past year, each attack lasting three or four weeks. The symptoms were eight or ten bloody stools a day, pain in the abdomen, tenesmus and loss of 10 pounds. Injections of linseed oil, ichthyol and silver nitrate, and medicines by mouth had not modified the symptoms.

*Physical Examination*.—The patient is rather pale and thin, and there is slight general abdominal tenderness. The temperature is 98.6, the pulse 90. The stools are almost pure mucus, flecked here and there with blood. Many blood- and pus-cells and many motile *Entamoebae histolyticae* are found.

*Course and Treatment*.—The patient was treated with chaparro amargosa by mouth and by rectum. He did not have a single bowel movement except when the injected fluid was expelled or when Epsom salt was taken. No blood or mucus was seen and no amebas could be found. The patient was feeling well and the appetite was fine. He reported two weeks later and I considered him well. This patient is at present a member of President Huerta's cabinet, and even under such exciting circumstances has not succeeded in precipitating a return of his dysentery.

Case 4.—A. R., boy, aged 9, was first seen Dec. 24, 1911, during the first attack. There were abdominal pain, tenesmus, blood and mucus in the stools, and there had been from two to four movements a day at intervals for six weeks. Paregoric and salts by mouth and ice-water enemas had alleviated but not cured the condition.

*Physical Examination*.—The general examination is negative. The stools are semisolid, containing blood and mucus; there is a characteristic foul odor; microscopically, blood- and pus-cells and *Entamoebae histolyticae* are detected in large numbers.

*Treatment and Course*.—Routine treatment was given. Injections were retained from half an hour to two hours. No bowel movement occurred except when the fluid was expelled. Blood and mucus disappeared at once and no living amebas could be found after the first treatment. The child gained 4 pounds in a few weeks and has remained perfectly well up to the present time.

Case 5.—Mrs. E. M. H., aged 62, first seen April 15, 1912, had shown symptoms of diabetes for several years and had had eight previous attacks of dysentery in the past three years, lasting from one to three weeks. There had been very acute symptoms for ten days; from ten to twenty bloody movements a day, tenesmus, abdominal pain and nausea.

*Physical Examination*.—The patient is acutely ill. The temperature is 101.6, the pulse 120. The urine contains sugar and acetone. The stools are almost pure mucus and pus, flecked with blood. Many amebas are found.

*Treatment and Course*.—The patient improved steadily from the first treatment. The bowels moved five times the first day, three times the second and only once on the succeeding day. The temperature came down to normal following the first treatment and remained normal. At the end of a week the patient was up and about and felt well, though there continued to be sugar in the urine.

Case 6.—A. R., Mexican, man, aged 29, first seen June 24, 1912, had had symptoms of dysentery for two years, with only one intermission of three weeks. There had been from six to twenty bloody stools a day and the patient had lost 30 pounds.

*Physical Examination*.—The general examination is negative except for slight tenderness in the sigmoid region. The stools are semisolid and contain much mucus. A moderate number of *Entamoebae histolyticae* and a few *Cercomonades intestinales* are found.

*Treatment and Course*.—This patient went home and used the treatment himself. He returned in two weeks and reported that his recovery had been rapid and complete. There has been no recurrence.

Case 7.—A. L., Mexican, man, aged 22, first seen June 24, 1912, had had acute bowel symptoms for three weeks. The appetite was poor, there had been nausea, vomiting, from six to twenty movements a day, severe intestinal pain and tenesmus, and blood and mucus were present in the stools. The patient suffered great weakness and had lost 20 pounds in weight. Bismuth and the usual antidiarrheal remedies had done no good.

*Physical Examination*.—This reveals an anemic, undernourished man. There is slight general abdominal tenderness. The stools are of fluid consistency, containing much blood and mucus. There are a moderate number of active *Entamoebae histolyticae*.

*Treatment and Course*. The patient greatly improved after the first treatment. There were no bowel movements till salts were taken. No motile organisms could be found. The patient improved steadily. He gained 2½ pounds in five days and had no further symptoms. He remained well for three months, when he was lost sight of.

Case 8.—B. H., negro, man, aged 24, first seen March 3, 1913, had had symptoms for six weeks; from six to fifteen bloody stools a day, pain in the abdomen, poor appetite, malaise, fever and loss of 5 pounds in weight. He had obtained no relief from the usual remedies.

*Physical Examination*.—The general examination is negative. A small stool passed in the office contains much blood and mucus; a few characteristic *Entamoebae histolyticae* and a few *Cercomonades intestinales* are found.

*Treatment and Course*.—The patient was begun on 2 drams of the detannated fluidextract of chaparro amargosa before each meal, and he did not have a single dysenteric stool afterward. He was seen ten months later and felt as well as ever. No amebas or *Cercomonades intestinales* were found in the stool.

Case 9.—W. C. N., merchant, aged 46, was first seen June 4, 1913. Onset had occurred four years before. He had slight dysenteric symptoms at Pleasanton, Tex., for three or four months. He went to Mexico and there became acutely ill. There were from five to twenty bloody stools in twenty-four hours, high fever, sharp abdominal pain and tenesmus. He lost 35 pounds in weight. He was brought on a stretcher to El Paso, where he stayed in a hospital three months and received all sorts of treatment, including ipecac. He improved but was not cured. He had continued to have recurring attacks of dysentery which were liable to follow work or overeating. The stools were never free from mucus. When seen, the patient had from five to ten bloody stools a day.

*Physical Examination.*—The patient is sparely nourished; the complexion is sallow; the mucous membranes pale. The general examination is negative except that the sigmoid is palpable as a firm tender mass. The stools are yellow, liquid and contain no blood or pus. A moderate number of very active *Entamoebae histolyticae* are found.

*Treatment and Course.*—Chaparro amargosa was given by mouth and by rectum. This was followed by immediate improvement; there was one formed movement the first day and one the second; there was no pain in the abdomen. Only one active ameba seen after treatment was begun. The patient says that for the first time in months he does not "have to run" when he rises in the morning. Treatment was continued for two weeks. At the end of a month he felt fine and had gained 8 pounds in weight. The bowels were moving once daily. No amebas could be found in the stools and there has been no recurrence.

Case 10.—W. G. L., a carpenter, aged 52, first seen Jan. 6, 1914, reported the onset as having occurred eighteen months ago with acute symptoms which lasted two months. There had been from twenty to twenty-five bloody movements a day, very severe abdominal pain and tenesmus, fever, nausea, general malaise and weakness. Since this time he had never been free from symptoms, though at times he had been somewhat better. He had not had a normal stool since the onset. When seen he was having from ten to fifteen bloody stools a day; there had been fifteen stools the day before. He had lost from 20 to 30 pounds weight. The patient felt very weak and was troubled much with palpitation of the heart.

*Physical Examination.*—The patient looks sick. The tongue is coated and the mucous membranes are very pale. The temperature is 98.6; the pulse 90. Hemoglobin is 50 per cent. The abdomen is slightly distended and tender over all. The sigmoid is markedly thickened and tender. A stool passed in the office is almost pure blood and mucus, containing a great many active *Entamoebae histolyticae.*

*Treatment and Course.*—One liter of the infusion of chaparro amargosa was given by rectum each morning and 8 ounces by mouth before meals and at bedtime. The bowels moved three times the first day and once each day subsequently, and this after 1½ ounces of Epsom salt on the first day. All pain and tenesmus ceased after the first treatment. A small, semisolid yellow stool passed the morning of the second day was free from blood macroscopically and microscopically, and no amebas could be found in it. All symptoms including palpitation, ceased from the very first. The patient gained 3 pounds in two days and was able to go to work on the fifth day—something he had not been able to do for eighteen months.

### SUMMARY

This is a report of ten cases of undoubted amebic dysentery of from three weeks' to four years' standing. Nine patients were given the infusion of chaparro amargosa and one, the detannated fluidextract; all were cured and there has been no recurrence so far as can be determined, the period of freedom from symptoms ranging from ten months to two years, omitting the last case; in only one case was a living ameba found in the stools after treatment was begun; these cases averaged less than two days before the stools became normal; there were no liver abscesses or other complications; experimental data prove the amebicidal action of chaparro amargosa no less surely than do the clinical results, the drug undoubtedly having an elective affinity for the protoplasm of *Entamoeba histolytica.*

## EXPERIENCE WITH CROTALIN AT THE OAKBOURNE EPILEPTIC COLONY *

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The treatment of epilepsy by the injection of rattlesnake venom has attracted some attention. Those of us who are connected with the Pennsylvania Epileptic Hospital and Colony Farm have been besieged by inquiries as to its value. Information was sought in person and by telephone, and letters were received from different parts of the country. The glowing reports heralded throughout the land in the lay press reached our patients and their families, some of whom almost insisted on our using crotalin. The matter became somewhat troublesome and, since we were without personal knowledge on the subject, there seemed sufficient reason for our giving the venom a trial.

Observations on epileptics made under colony supervision should be useful, since the life there is the most regular and healthful possible. Patients are not left to report on their own condition—a method of gathering information which may be most unreliable. Attacks often occur while patients are asleep, and frequently there are manifestations during the day of which these persons are unaware. Again, seizures may prevent them from reporting regularly to the physician. These conditions and others detract from the value of the work when the patients are not kept under close observation.

For the purpose of this study a fair group of patients having idiopathic epilepsy was selected for three months' treatment. Afterward came the work of leveling up to determine as nearly as possible just what effect crotalin had on these patients. This was a difficult problem, and a few words parenthetically may not be out of place.

Epilepsy is perhaps the most peculiar disease known. Aside from their epileptic phenomena and characteristic temperament, some of these patients are in moderately good physical condition. All paroxysms may cease for a time without known cause and in very rare instances a spontaneous cure has occurred. An acute illness usually holds the seizures in abeyance, and pregnancy occasionally does the same. Some epileptics have attacks only when asleep, and there are a few whose disease is never suspected. Seizures may be so mild as scarcely to be observed even while the patient is watched, or status epilepticus may supervene at any time, and this condition is often fatal by the third attack. About one out of ten epileptics has frequent insane episodes which occur precipitately, and there is no more dangerous form of insanity. Self-consciousness may be lost suddenly, and in this state of automatism the worst of crimes have been committed without the subsequent knowledge of the patient. When in such a condition the subject is no more responsible for his actions than we are for our dreams.

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* Read before the Philadelphia County Medical Society, April 15, 1914.

* From the Pennsylvania Epileptic Hospital and Colony Farm and the Department of Neurology of the University of Pennsylvania.

There is a great deal more to epilepsy than fits; indeed, the cardinal symptom of epilepsy is the disturbance of consciousness and not the motor manifestation.

In a series of cases no course of treatment has been highly gratifying, and sometimes disappointment comes when it is least expected. A patient now under observation is a case in point. She is a 14-year-old schoolgirl at our colony, and was having on an average twenty-five seizures a month. Under active thyroid treatment she made decided improvement in every respect, and for six months was without attacks. Of course we thought we were on the right track. And then, without known cause, she began with a few isolated attacks and a little later suddenly broke into a series of 142 seizures which were by far the worst she has ever experienced.

Our observations were made on six patients who had idiopathic epilepsy. All but one were given an intramuscular injection of crotalin once a week for three months. We began with $1/200$ grain, and the amount was gradually increased to the strength mentioned in each case.

A distinct psychic influence is often observed in the treatment of epileptics, and in view of this the purpose of the injections was kept as much as possible from the knowledge of the patient.

Case 1.—A. P., a Hebrew girl aged 16, had been a resident of the colony for two years. Her attacks began at 8 years of age without obvious cause. She was one of the best pupils in our school, but still was just a shade below the average girl in mentality. The seizures were both major and minor. She had never had status epilepticus, nor had there ever been an insane episode. When treatment was begun her attacks were about as frequent as at the time of admission. The injections were gradually increased to $1/50$ grain. This girl always had an irritable disposition; she improved somewhat in this respect. For the year previous to treatment she had an average of eighteen attacks a month and during treatment there was an average of seventy-nine seizures a month.

Case 2.—J. C., a boy aged 16, had been a resident of the colony for four and a half years. His attacks began in infancy without known cause. The clinical history of this patient showed two attacks of status epilepticus which were followed by stupor for about four weeks. He was feebleminded. For the year previous to treatment there had been an average of twenty seizures per month. After treatment for a month his attacks began to increase in number, and then status obtruded itself and this was followed by a stuporous state which persisted throughout the treatment. The final injection was $1/40$ grain. The status was somewhat confusing but so far as we could determine, this patient was uninfluenced by treatment.

Case 3.—L. M., a woman aged 34, had been a resident of the colony for three years. Her attacks had begun fifteen years ago and were about as frequent as at the time of admission. She was feeble-minded. The final injection was $1/30$ grain. For the year previous to treatment her attacks occurred twelve times a month and during treatment there were about thirteen a month. This patient was apparently uninfluenced by treatment.

Case 4.—E. M., a woman aged 32, single, had been a resident of the colony for nine years. The first attack occurred at 19 years of age just after the death of her mother. The attacks were both major and minor and at the time of admission were occurring about five times a day. Occasionally the seizures were in series. The intelligence of this patient is that of the average epileptic. She has always showed some mental depression and has suffered frequently from headache. At one time she was placed for three months on a drug prominent in the armamentarium of the epileptologist, and made very decided temporary improvement. During the last month of this period she had only four very light attacks; she was mentally alert and showed less depression than at any time during her residence at the colony. Unfortunately she, like so many others, relapsed. It was thought that this patient might prove responsive temporarily to crotalin also, but an unusual condition developed. After the first injection her arm became intensely swollen, much more so than those of the other patients. For the week following she had twenty attacks. The second injection, which was $1/150$ grain, gave rise to more marked local reaction and for the ensuing week there were fifteen attacks. The third injection was $1/125$ grain, and the local disturbance resulting was most intense. During the following week there were twenty-two seizures and these were more severe than any that had occurred during the patient's nine years' residence in the colony. In addition to the cellulitis there was prostration, extreme mental depression, loss of appetite and nausea; she had constant and severe headache. Because of these symptoms the injection for the following week was omitted, when her condition promptly improved and she had only twelve minor attacks. A week later, $1/100$ grain was given, and ten attacks were recorded with a return of all the toxic symptoms. Another injection was tried the next week, with the result that fifteen severe convulsions followed and the toxic symptoms which ensued were so severe as to cause us to feel that further trial was unjustified.

Case 5.—C. A., a man aged 35, a clerk, had been a resident of the colony for seven years and was usefully employed there. He was married at 27 years of age and his first seizure occurred four months later. Epilepsy developing at that age is sometimes on a syphilitic basis. The ophthalmologic examination by Dr. H. Maxwell Langdon, the Wassermann test by Dr. Corson-White and the absence of luetic neurologic findings all spoke against syphilis. Some years before there had been an insane episode of two days' duration. This patient's mental condition was better than that of any other of the adult colonists. He was considered a good subject for treatment because of his preserved mentality, and beside he was exceedingly desirous and we may say almost insistent on treatment. He had come to the city and consulted a physician and would have left us to take the crotalin treatment had he had the money to do so. Attacks for the year previous to treatment were about as frequent as at the time of admission and amounted to three severe seizures a month occurring in series. The final injection was $1/25$ grain. During the treatment he had an average of five attacks a month, he was exceedingly irritable and quarrelsome and his memory was somewhat impaired. He realized that he was worse than before and asked that the treatment be discontinued.

Case 6.—The family of this patient was exceedingly anxious that the treatment be given. J. C., a man aged 23, single, had been a resident of the colony for one year and three months. His attacks began at 9 years of age without known cause. His clinical history showed that he had had a few brief periods of mental aberration. The last injection given was $1/25$ grain. Previous to treatment there were on an average of thirteen attacks a month, and during treatment there were twelve attacks a month; but in the midst of the course he had an insane period of three weeks' duration during which time he was free from seizures. His subsequent history included three insane periods of short duration and three series of major epileptic attacks. The last series occurred two and a half months after treatment had stopped. During the last series, which was of two days' duration, sixty convulsions occurred and then he died.

Briefly stated, our experience with crotalin in the treatment of six cases of idiopathic epilepsy was this: Two patients were uninfluenced; two were worse during the treatment; one, early in the course developed such intolerant toxic symptoms that further experimentation was unjustified, and the last patient died two and a half months after treatment. While we did not feel that death resulted from the use of crotalin, the patient's disease certainly was not benefited by the treatment.

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# THE NORMAL AND PATHOLOGIC PHYSIOLOGY OF THE VISCERAL NERVOUS SYSTEM

## WITH ESPECIAL REFERENCE TO VAGOTONY AND SYMPATHICOTONY: A REVIEW *

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If one contemplates the contemporaneous literature, one is greatly impressed with the volume of work which is being done on the sympathetic nervous system.

It was Langley who, in the latter part of the nineteenth century, first called our attention to a more correct notion of the autonomic nervous system. He showed that the conception then current—that the sympathetic nervous system served wholly as a nerve pathway through which the so-called sympathetic actions of distant organs were affected and that it did not, as Bell taught, arise from the brain by branches connected with the fifth and sixth cranial nerves—was wrong. His views in the main are those of the present-day conception.

### ANATOMY AND PHYSIOLOGY OF THE VISCERAL NERVOUS SYSTEM

The autonomic nervous system, better termed the vegetative nervous system, is that system of efferent fibers arising from the sympathetic and related ganglia which supplies the organs of involuntary processes of the body and possesses a certain independence of the central nervous system. Its anatomy is too well known to be given here in detail. Briefly, it includes some of the cranial and sacral nerves and the sympathetic system proper. The latter is composed of a chain of ganglia lying on each side of the vertebral column. One ganglion, as a rule, is present to each spinal nerve-root. In the cervical region only two ganglia are found, namely the superior and the inferior cervical ganglia. These are united by the cervical sympathetic trunk. The upper three to four thoracic ganglia are condensed to form the stellate ganglion. At the bottom of the chain only one coccygeal ganglion is found for the coccygeal vertebrae. All these constitute the first system or the "lateral ganglia."

The second system of ganglia in the abdomen, called the "collateral ganglia," has a special connection with the abdominal viscera and includes the semilunar or solar ganglion, and the superior and inferior mesenteric ganglia.

The third system of ganglion cells, called the "terminal ganglia," including Auerbach's, Meissner's and the cardiac plexuses, is found in the viscera themselves. These have, as a rule, no connection with the fibers of the sympathetic system, but lie on the course of impulses descending by other nerves of the vegetative system, for example, the vagus or pelvic visceral nerves. This system is capable of some independence of the other nervous systems.

The sympathetic ganglia are connected with the spinal nerves just after they have given off their posterior divisions by means of rami communicantes, which are of two kinds: (1) white rami, consisting of small medullated fibers, and (2) gray rami, almost exclusively non-medullated fibers. The white rami are formed by fibers which have their origin in the spinal cord and perhaps in the posterior root ganglion. The gray rami represent fibers which, arising in the sympathetic ganglia, run back to join the spinal nerves.

The outflow represented by the white rami is limited from the first thoracic to the third or fourth lumbar nerve-roots; whereas gray rami pass from the sympathetic to all spinal nerve-roots. Thus it has been shown by experiment that stimulation of a limited number of white rami produces all the effects that can be evoked by stimulation of the gray rami, showing that impulses leaving the cord pass upward and downward in the sympathetic system and are broken somewhere in their course, being transferred to a fresh relay which, by means of non-medullated nerves, carries them on to their destination.

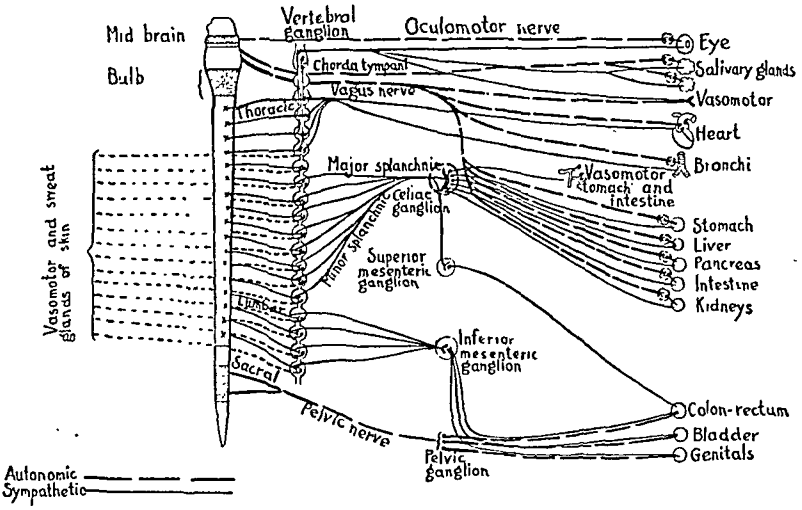

Diagram of the anatomic relations of the autonomic and sympathetic systems (from Meyer and Gottlieb, Experimentelle Pharmakologie, 1911, p. 128).

Langley, therefore, has shown that each fiber of the sympathetic nervous system can be regarded as being made up of two sections: (1) preganglionic fiber, which is medullated, arises in the central nervous system and passes down to a ganglion, and (2) postganglionic fiber, usually non-medullated, which arises from the ganglion and continues to its peripheral distribution.

Some authors state that between the muscle or gland and the nerve terminal an intervening substance

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* Read before the San Francisco County Medical Society, Feb. 10, 1914.

(myoneural, adenoneural) is present, in which the ions of the various elements exert their specific action.

Besides the main sympathetic nerves derived from the spinal cord region, certain cranial and spinal nerves, namely, the third, fifth, seventh, ninth and tenth cranial nerves and the nervi erigentes from the sacral region of the spinal cord, have visceral fibers belonging to the vegetative nervous system, not directly connected with the sympathetic or the central nervous system. Those visceral fibers connected with the cranial nerves are termed the cranial autonomic nervous system, those in the sacral region, the sacral autonomic nervous system, the whole constituting the autonomic nervous system, sometimes termed the vagal system.

The visceral fibers of the third cranial nerve are called the midbrain autonomics. These pass as preganglionic fibers to the ciliary ganglion in the orbit, where they end. The postganglionic fibers from this ganglion form the short ciliary nerves which innervate the sphincter pupillae and ciliary muscles.

The visceral fibers connected with the other cranial nerves constitute the hindbrain autonomics.

The visceral fibers of the seventh cranial nerve arise from the medulla and intermediate nerve of Wrisberg (which is practically the anterior continuation of the ninth, tenth and eleventh cranial nerves), and give rise to the chorda tympani, which supplies the vasodilator nerves to the tongue, submaxillary and sublingual glands besides supplying secretory fibers to these glands. The preganglionic fibers to the sublingual and submaxillary glands end in the submaxillary ganglion.

The seventh cranial nerve also sends preganglionic visceral fibers to the sphenopalatine ganglion, whence the postganglionic fibers run with branches of the fifth cranial nerve to supply secretory and possibly vasodilator fibers to the mucous membrane of the nose, soft palate and upper pharynx.

The visceral fibers of the ninth cranial nerve, namely, the otic ganglion, produce vasodilatation and secretion of the parotid gland. Also a few dilator fibers go to vessels at the back of the tongue.

The visceral fibers of the tenth and eleventh cranial nerves arise in the same column of cells as the seventh and ninth. Most of these fibers run in the vagus, and include motor fibers to the esophagus, stomach and small intestines as far as the ileocolic sphincter and inhibitory fibers to the heart and smooth muscle of the bronchial and gastric glands. The preganglionic fibers end in the jugular ganglia. (It has been shown that the ganglia of the trunk of the vagus is probably the cell station for afferent fibers in this nerve.)

The nervus erigens contains all the pelvic visceral fibers and is connected with the ganglia lying in the hypogastric plexus. It has the following functions:

1. Dilator to the vessels of the penis.
2. Motor to the bladder, colon and rectum.
3. Inhibitory to the sphincter of the bladder.
4. Inhibitory to the retractor penis.

The afferent fibers of the visceral nerves probably arise from the cells of the posterior spinal ganglia.

In general it may be said, according to Langley, that the supply of afferent fibers of the viscera is very small in proportion to that of the outer surface of the body. For example, in the hypogastric nerve and also in the splanchnics, only about one-tenth of the medullated fibers are afferent. In the mouth, anus, lung and bladder, where both somatic and visceral innervation are represented, the afferent visceral supply becomes much greater in proportion; for instance, the pelvic visceral nerve contains about one-third afferent fibers.

Notwithstanding their afferent nerve-supply, ordinary stimulation of the viscera, such as handling, etc., produces no sensation of pain to the patient; but pathologic stimulation, such as stretching, compression and other effects of disease, is productive of pain which, as Head and Mackenzie have shown, is not referred to the diseased viscus, but is referred to certain parts of the cutaneous surface, hypersensitiveness of which localizes in large measure the position of the diseased viscus.

In describing the visceral fibers coursing with certain cranial nerves, the functions of these fibers was hinted at. The fibers of the vegetative nervous system, it may be stated generally, are not equivalent in their functions; for example, the heart-beat is quickened by stimulation of the accelerators (sympathetic) and slowed by stimulation of the vagi (autonomic). Again, the functions of the vagus for the greater part of the gastro-intestinal canal are motor, while those of the splanchnics (sympathetic) are inhibitory. These two examples not only show that the functions of the two sets of visceral fibers are antagonistic to each other, but they also cite what is true for most of the viscera: that generally the viscera are innervated by both the craniosacral (autonomic) nervous system and also by the sympathetic nervous system with functions reciprocal to each other. The functions, moreover, of any one set of fibers for a given viscus are not always sharply outlined; for instance, the colonic branches of the superior mesenteric ganglion are motor (constrictor) for the blood-vessels and inhibitory for the muscular walls of the colon; also the sympathetic, being inhibitory to the intestines generally, is also motor to the ileocolic sphincter, and sends both motor and inhibitory fibers to the bladder. Again, the nervi erigentes are not only dilator to the vessels of the penis and motor to the colon, bladder and rectum, but inhibitory to the sphincter of the bladder and to the retractor penis.

TABLE 1.—EFFECTS OF ELECTRIC STIMULATION

| Nerve or Region Stimulated | Result |
|---|---|
| Oculomotor nerve (autonomics)<br>(Midbrain) | Pupillary contraction.<br>Accommodation spasm. |
| Sympathetic (in the neck) | Pupillary dilatation. |
| Vagus (autonomics) | Slowing of heart or stoppage of heart. |
| Accelerators (sympathetic) of heart | Quickening of heart-beat. |
| Sympathetics | Arrest of secretion of salivary glands. |
| Autonomics (chorda tympani) | Salivation. |
| Sympathetic (splanchnics) | Decrease in tonus of stomach and intestines.<br>Increased secretion of gastric juice. |
| Autonomics (vagus) | Increase in tonus of stomach and intestines.<br>Decrease in secretion of gastric juice. |
| Sympathetic | Relaxation of detrusor of bladder. |
| Autonomics (pelvic visceral nerve) | Contraction of detrusor of bladder. |

The adequate stimuli capable of producing effects through the visceral nervous system may be summed up under the following captions:

1. Electric stimuli.
2. Mechanical stimuli.
3. Chemical stimuli, including those of:
    - A. Exogenous origin.
    - B. Endogenous origin: (*a*) hormones, (*b*) internal secretions, (*c*) toxins; etc.
4. Emotions (probably ultimately chemical).

1. The effects of electric stimulation are given in Table 1.

2. Mechanical stimulation of the same nerves causes in general the same effects as produced by electric stimulation.

3. Chemical substances, whether exogenous or endogenous, are found to exert their influence on the vegetative nervous system, sometimes affecting one system exclusively, sometimes another, and sometimes both.

A. Exogenous chemicals:

1. Nicotin interrupts conduction at the junction (synapse) of the preganglionic and postganglionic fibers of both the autonomic and sympathetic systems.

2. Pilocarpin, muscarin and physostigmin and digitalis stimulate the vagus system (autonomics) and are therefore called vagotropic or vagotonic drugs. The signs produced by these drugs are similar to those produced by electrical stimulation of the autonomics, namely, myosis, bradycardia, salivation, etc.

3. Atropin, scopolamin and other products of the belladonna series produce their effects by paralysis of the terminals of the vagus system (autonomics), especially the cranial autonomics, and are termed vagoparalytic drugs. The well-known effects of administration of these drugs—for instance, mydriasis, dry mouth, tachycardia, etc.—are very similar to the effects produced by stimulation of the sympathetic.

4. Picrotoxin has been shown to stimulate the preganglionic fibers of the autonomic system (vagus system).

5. Ergotoxin has a paralytic effect on the terminals of some of the sympathetic fibers (sympatheticoparalytic), and can be compared to the effects of atropin, etc., on the autonomic terminals.

6. Cocain stimulates all the sympathetic fiber terminals, producing mydriasis and exophthalmos; the effects of cocain are not produced after degeneration of the sympathetic fibers. It has also been shown that cocain sensitizes the sympathetic fibers to epinephrin (which see), and that so-called cocain poisoning is not really the effects of cocain, but rather an epinephrin effect.

B. Endogenous chemicals, hormones, toxins, etc.

7. Epinephrin stimulates the sympathetic system only at the terminal of the postganglionic fibers. It is sympathicotropic or better, sympathicotonic in action, and its effects are similar to those produced by electric stimulation of the sympathetic system.

8. Iodothyrin stimulates the sympathetic, especially in the cervical and thoracic regions.

9. Pituitrin causes vasoconstriction other than renal, and also produces contractions of the bladder and uterus.

10. Cholin (extracted from the cortex of suprarenal glands) produces results similar to pilocarpin, that is, vagotonic.

11. Recently Voegtlin and Macht isolated from the cortex of the suprarenal bodies a sympathicotonic substance whose effects were longer lasting than those of epinephrin.

12. The internal secretion of the pancreas favors inhibition of the sympathetic and is antagonistic to epinephrin, that is, vagotonic.

Many other less important substances could be included in this list, but we can at once see that electric stimuli and certain chemical stimuli are identical in their effects for a given set of fibers, and also that when organs are doubly innervated a certain effect can be produced by either the stimulation of one set (for instance, the sympathetic), or by paralysis of the other (that is, the vagus). Again it might be well to cite an example of this: a dilated pupil could be produced by paralysis of the vagus system or by stimulation of the sympathetic system in the neck (both of which conditions could, as stated above, be produced by chemicals).

Epitomizing the effects of chemical stimulation on the vegetative nervous system, we can make the classification given in Table 2.

4. Cannon and de la Paz have shown that psychic excitement and fright are associated with stimulation of the vegetative nervous system and are capable of producing: (1) sympathicotonic effects such as pallor, mydriasis, tachycardia, and (2) vagotonic effects such as epiphora, sweating, etc.

Grouping all the foregoing effectual methods of stimulation of the vegetative nervous system together, it can readily be seen that the effects of various stimuli to the autonomic system (vagus system), and to the sympathetic system are in general specific and reciprocal.

SIGNS OF VEGETATIVE NERVOUS SYSTEM DISORDERS

When one considers the wonderful balance which is maintained, not in the peripheral nervous system only (as evidenced by the action of opposing muscles in the acts of walking, standing, etc.), but especially in the vegetative nervous system, examples of which are manifold (as the equality of the pupils and the effects of light and other stimuli; the tone of the capillary system, and the rate of the heart-beat and its various rate modifiers), he is likely to give to the latter-named system the clinical weight which it so richly deserves, but which, for lack of definite knowledge of the effects on it of various agencies such as chemicals, ductless glands and metabolic disturbances on the various organs, is now being actively pursued.

TABLE 2.—EFFECTS OF CHEMICAL STIMULATION

| Part or System Affected. | Effect | Drug Used |
|---|---|---|
| Synapse: autonomic (vagus system) sympathetic. | Paralysis | Nicotin. |
| Autonomic system | Stimulation | Muscarin, pilocarpin, physostigmin, picrotoxin, digitalis and its derivatives, cholin, internal secretion of pancreas. |
| Autonomic system | Paralysis of terminals. | Scopolamin, atropin and belladonna derivatives. |
| Sympathetic in part | Paralysis (terminals). | Ergotoxin. |
| Sympathetic wholly or in part. | Stimulation | *Epinephrin, iodothyrin, pituitary extract, cocain.* |

The neurologist of to-day must needs fasten his attention, not alone on the study of the central nervous system, but also on the study of the vegetative nervous system—visceral neurology. How many are the cases which, when studied in this light, yield data which have helped to decide the correct and logical course of treatment instead of the formerly much-abused empirical course?

At this point it may be well to call attention to a renumeration of some of the more important symptoms and signs which the visceral neurologist must take heed of, given in Table 3.

Many other examples could be cited, but Table 3 constitutes a good framework on which one can build a classification of certain groups of diseases showing a predomination of vagotonic or sympathicotonic signs. Many of these signs and symptoms can be produced by decreased functioning of one of the systems with corresponding overfunctioning of the other; for example:

Tachycardia could be produced by paralysis of the vagus or overexcitation of the accelerators (sympathetic), etc.

Acrocyanosis, by paralysis or paresis of the vasoconstrictors to the skin.

Low blood-pressure by lessened sympathetic tonus.

Pigmentation of the skin in decreased sympathetic tonus.

### IMPORTANT SYMPTOMS AND SIGNS

| Vagotonic Symptoms and Signs | Sympathicotonic Symptoms and Signs |
|---|---|
| 1. Myosis. | 1. Mydriasis. |
| 2. Accommodation spasm. | 2. Paralysis of accommodation. |
| 3. Epiphora. | 3. Dryness of eyeballs. |
| 4. Hyperhidrosis. | 4. Dryness of skin. |
| 5. Frequency of winking. | 5. Infrequency of winking (Dalrymple's sign). |
| 6. Salivation with constant spitting. | 6. Dryness of mouth. |
| 7. Hyperacidity of stomach contents. | 7. Low gastric acidity. |
| 8. Arrest of secretion of gastric glands (achylia). | 8. Increased gastric secretion (gastrosuccorrhea). |
| 9. Hypermotility of stomach and intestines. | 9. Lessened intestinal tonus. |
| 10. Vomiting. | |
| 11. Diarrhea (8 to 10 times daily). | 11. Constipation. |
| 12. Spastic colon. | |
| | 13. Faulty convergence of eyes (Moebius' sign). |
| 14. Biliary colic (inhibited by atropin). | |
| | 15. Wide eye-slits. |
| 16. Enophthalmos. | 16. Exophthalmos. |
| 17. Bradycardia. | 17. Tachycardia. |
| 18. Low blood-pressure. | 18. High blood-pressure. |
| | 19. Vasoconstriction as seen in (*a*) peripheral anemias, (*b*) intermittent claudication, etc. |
| 20. Pollakiuria. | 20. Relaxation of detrusor of bladder (incontinence) |
| | 21. Urticaria. |
| 22. Asthmatic attacks. | |
| 23. Esophagism. | |
| 24. Mucous colitis (analogue of bronchial asthma). | |
| 25. Gastrospasm and pylorospasm. | 25. Atony of stomach. |
| | 26. Gastroptosis. |
| 27. Dermatographia. | 27. No dermatographia. |
| 28. Outspoken status thymicolymphaticus. | 28. Tonsils small and atrophic. |
| 29. Gag-reflex almost absent. | 29. Gag-reflex marked. |
| 30. Eosinophilia. | 30. Eosinopenia. |
| 31. Pulsus irregularis respiratorius, which disappears with atropin. | |
| 32. Irregular breathing (disappears with atropin). | 32. Tachypnea with dyspnea (not affected by atropin). |
| 33. Clammy hands and feet. | 33. Dry hands and feet. |
| 34. Priapism. | |
| 35. Aschners' phenomenon produces slow pulse. | 35. Aschners' phenomenon produces no change in pulse. |
| 36. After atropin-pressure on eyeballs produces no slowing of pulse. | |
| 37. Increased fat tolerance. | 37. Steatorrhea. |
| 38. Increased carbohydrate tolerance before and after epinephrin administration. | 38. Lowered carbohydrate tolerance before and after epinephrin administration (i. e., epinephrin hypersensitiveness). |
| 39. Pilocarpin causes extreme salivation. | 39. Pilocarpin causes no salivation. |
| | 40. Loewi test. |

### TESTS

*The following tests are used in the physiologic and pharmacodynamic studies:*

1. *Loewi's Test.*—From 2 to 3 drops of a 1:1,000 epinephrin solution, instilled into the eye of a normal person, produces vasoconstriction but no pupillary dilatation. In some forms of hyperthyroidism, especially with lowering of autonomic sensibility, a pupillary dilatation occurs. This is also produced in pancreatic diabetes, that is, hypersusceptibility of pupils to epinephrin.

2. *Aschner's Phenomenon.*—Pressure on the eyeballs for from one-half to one minute produces no change of pulse in normal persons. When vagotonia exists there is a rather sudden slowing of the pulse with this procedure. (This effect is caused by pressure on the eyeballs stimulating the trigeminus and reflexly the vagus, stimulation of which causes bradycardia and stoppage of respiration in the expiratory phase.)

3. *Pilocarpin Test.*—Pilocarpin, $\frac{1}{10}$ grain (hypodermically), causes extreme salivation and bronchial secretion in vagotonia. No salivation is noted in sympathicotonia.

4. *Fat Tolerance.*—The normal fat tolerance is from 100 to 150 gm. in twenty-four hours. The patient is given 200 gm. of butter, with meals, to be eaten in twenty-four hours. The stools are saved and examined for fat for forty-eight hours following. Fat-free stools indicate a vagotonic condition. Marked steatorrhea indicates a sympathicotonia.

5. *Carbohydrate Tolerance.*—Normally 100 gm. of glucose can be taken on a fasting stomach without a resulting glycosuria. In sympathicotonia a spontaneous glycosuria is produced, whereas an increased tolerance for glucose is present in vagotonia. The test is performed in the following manner:

On the fasting stomach 100 gm. of glucose with 400 c.c. of water are given at 6 a. m. The patient immediately urinates and hourly thereafter for five hours. The specimens are to be saved separately and examined for glucose. The first specimen is used as a control. The tolerance for carbohydrates can be determined then by increasing or decreasing the amount of glucose at each test until a faint reduction to Fehling's solution is produced.

6. *Epinephrin Hypersensitiveness.*—One hundred gm. of glucose by mouth and 1 mg. of epinephrin hypodermically are given from a quarter to half an hour later, and the carbohydrate tolerance test, just described, followed out.

In vagotonia no glycosuria is produced by this procedure. In sympathicotonia about 6 gm. of glucose are excreted in the urine in five hours.

7. *Pulsus Irregularis Respiratorius (Hering).*—On deep inspiration and on expiration only slight normal physiologic difference is noted in the rate and size of the pulse. In vagotonic states, inspiration causes increase in the rate of the pulse and decrease in the size; expiration causes slower pulse and increase in size (best shown by tracings).

8. *Dermatographism.*—A. After blushing (Polonski) produced by rubbing the skin, pathognomic of loss of equilibrium in the vegetative nervous system, probably deficient sympathetic tonus.

B. "Perverse reaction" (Hess and Konigstein).

Rubbing the skin produces stimulation of the pilomotor fibers and vasoconstriction, that is, sympathicotonia. Patients in this group usually have pallor of the face which gets paler under psychic stimuli (whereas the normal result should be blushing).

To attempt a clinical classification at this time with the foregoing data is without the scope of this paper, but it would not be amiss to give in general the results of observation in twenty-three cases studied from the point of view of vagotonia and sympathicotonia. These cases include 11 of exophthalmic goiter, 6 of neurasthenia, 1 of bronchial asthma, 3 of hyperthyroidism, and 2 of gastric ulcer.

In general, it was found that one case reacted according to the vagotonic or to the sympathicotonic classification only. Just one case of gastric ulcer could be considered pharmacodynamically and symptomologically vagotonic alone.

The hyperthyroidism and neurasthenic cases portrayed as many vagotonic as sympathicotonic signs, and were just as sensitive to epinephrin as to pilocarpin.

One case of bronchial asthma, clinically vagotonic, reacted violently to epinephrin with marked rigor, tremor, chill, increased blood-pressure and glycosuria. This patient was also pilocarpin-sensitive. Atropin had no therapeutic effect on the attack.

Patients with exophthalmic goiter follow the clinical classification described in the outline, and a very interesting fact was noted in these cases. The region most affected, the eye, heart, etc., was more sensitive pharmacodynamically than were others not so implicated. When tachycardia was marked, epinephrin caused greater relative increase of the tachycardia than it did on the blood-pressure or tremor when these were not so marked. One case showed 2 per cent. eosinophilia, after pilocarpin; this increased to 5 per cent.

The chief symptoms produced in patients sensitive to pilocarpin were: marked salivation and sweating, lowered blood-pressure and slight nausea, and capillary dilatation, increase in surface temperature sometimes amounting to 1 degree. In one case the pulse was *slowed*. Eosinophilia was noted twice in the series.

Epinephrin-sensitive patients reacted with tremor, tachycardia, increased blood-pressure (in one case by 20 mm. Hg), glycosuria and rigors.

Hemmeter has emphasized that "patients who already have an organic disease of the stomach will answer more readily to chemicals that excite the secretions and motions of the stomach than normal individuals." The same can be said of the heart, kidney, skin, ductless glands and the general nervous system.

The subject of vagotonic and sympathicotonic states is still in its infancy, and the sharp lines drawn by the originators of this conception will in time be so modified that a clearer conception of disease entities due to disturbances of the vegetative nervous system will be ferreted out.

Neuroses of various kinds, ductless gland disorders, vicious cycles, etc., will then be classified into rational clinical and pharmacologic bases. The fruits of these studies will not only enrich the fields of normal and pathologic physiology, but will also help to dispose of many fallacious conceptions existing in these realms.

Visceral neurology has come to stay. It will be found a stalwart weapon for attack on the diagnosis of many obscure conditions now classified under neurasthenia, neuroses, etc. The etiology of many common diseases, such as gastric ulcer, cardiospasm, constipation, ductless gland disturbances, etc., will be cleared up, thereby permitting a rational method of therapy.

At some future date an exposition of the cases will be given, and it is hoped that this paper will serve to stimulate active work in this fascinating subject.

I am greatly indebted to Dr. R. L. Wilbur for the use of patients in his wards.

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**Heredity.**—Heredity is not, as is often imagined by biologists, a necessary property of living matter, comparable to the inertia of matter, a sort of biologic postulate which does not require a genetic explanation for itself. It is, like all biologic phenomena, a product of evolution; it is an adaptation, the prototype of all adaptations. Moreover, it is of fundamental importance, because without it life itself could not have been preserved, nor could there be any stability of form or of mechanism.—Lugaro, Problems in Psychiatry.

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# THE SURGICAL TREATMENT OF POSTOPERATIVE PALATE DEFECTS

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Acquired openings through the palate, if surgical or due to accidental injury, show an active tendency to repair which quite often results in the ultimate closure of fissures that under other conditions might not be expected to close without surgical operative interference. When these lesions occur as a result of syphilis, the hard-palate defects show remarkable ability to close themselves if the parts are kept properly clean and protected by a suitably adjusted plate; but when luetic ulcerations have destroyed any portion of the velum the characteristic contractions of scar tissue usually so deform the soft palate that it suffers not only the ill effects due to the tissue actually lost, but also still greater injury through the deformity, which often is exceedingly difficult to overcome when restoration is attempted.

Aside from considerations pertaining to the nature of the cause of the palate fissure, and those which concern the constitutional treatment necessary to preparation for operation in individual cases, the actual surgical requirements do not differ materially from those demanded in closure of the postoperative palatal defects of congenital cases.

Bearing in mind these exceptions we may therefore include them all in the following classifications:

1. Contraction and arrested development of the hard palate, associated with intranasal and extranasal defects and irregularities of the teeth due to forcible compression in an effort to close the palate fissure in early infancy.
2. Defects in the anterior portion of the hard palate augmented by imperfect labial connection in this region, as found almost invariably when the premaxilla has been removed or destroyed in closure of double harelip, and sometimes when the premaxillary portion of the palate has not been perfectly joined to the other maxillary divisions in infant operations.
3. Openings through the central portion of the hard palate alone.
4. Opening at the junction of hard and soft palates involving both.
5. Hole in the central portion of the velum palati.
6. Defect occurring on one side at the posterior border of soft palate.
7. Fissure between the uvulae.
8. Imperfect form of the faucial arches due to defective operative results.
9. Velum too short.
10. More than one defect, including any of the forms previously described.

Each of the foregoing conditions may be subject to many clinical subdivisions with reference to form and situation, and each requires distinct recognition in determining the operative steps to be followed in attempting their correction. Failure in this respect means almost invariably an ineffectual result. The measure of an operator's success in the treatment of these cases, presenting as they often do, histories of many previous unsuccessful attempts to close such palatal fissures completely, will be determined largely by his ability to detect and overcome the underlying opposing factors in each case, and the accuracy with which his operative methods may be modified to meet the existing adverse conditions.

Although good results have been reported by surgeons who have reoperated soon after it became apparent that the sutures of a previous operation would not hold and that sloughing of the parts was actively destroying tissue at the line of apposition beyond the hope of success, this does not seem to me to be an advisable procedure. It is altogether probable that such benefit as may have been secured in this way has resulted not, as has been asserted, so much from an improved local resistance due to leukocytosis as from the fact that separation of the mucoperiosteal tissue was more efficiently accomplished at the second than at the first attempt. Thus tension was more effectually overcome and the result consequently better.

In my own practice I am governed by the belief that once the mucoperiosteal flaps have been raised and moved across in an attempt to close the palate fissure, it is better, if possible, to allow a period of from nine months to one year to elapse before again undertaking the same kind of operation because it takes time to reestablish circulation in these tissues sufficiently to give them a dependable resistance. The underlying principle of all my operations has been to restore the parts in such form as to maintain as nearly as possible the natural relation of all of the tissues involved. The necessity for this I referred to at length in an article[1] illustrated by pictures of dogs' palates on which I operated according to different methods.

In undertaking the surgical closure of palatal defects, the omnipresent question invariably arises. Shall tissue be secured to cover the openings by dissecting free a sufficient area from one side and turning it over so that the structures are reversed with an attached pedicle on the inner border of that side and suturing the free edge to the freshened border on the opposite side in accordance with the principles governing the Davies-Colley and other similar operations in the performance of uranostaphylorrhaphy, or shall mucoperiosteal flaps be raised and brought together by taking advantage of the arch of the palate supplemented by liberating incisions on each side to aid in effecting coaptation along the central line after the methods of von Langenbeck as modified at the present time?

The objection that I have previously urged against flap-reversing operations is that they do not appear to give the best results in the course of postoperative development. This does not hold in anything like the same degree against the employment of these methods in closing small openings because the importance of periosteal activity in bone production in these cases is not so great. Nevertheless, I feel that it is worth every effort to try to gain the desired results without disturbing the natural mucoperiosteal relationship to the bony portion of the palate, whether the opening be large or small. Although conditions favorable to bone formation are not so vital as when a large palatal fissure is involved, there is always the possibility of more or less sloughing in spite of every care. It is therefore better to keep the parts in such form that subsequent granulation of the wound surfaces will tend to fill in any opening that might still exist. If it does not fill in completely by granulation the result on the surrounding structures ought to be favorable rather than unfavorable to successful closure at a later operation, should one be necessary. The loss of a flap so raised and reversed as to leave a corresponding surface of bone denuded might render further surgical operative measures practically useless because this portion of the palate might not be completely restored, and any such bare surface would at best be covered only by a thin layer of tissue that would not be dependable or serviceable for flap purposes.

The difficulties which are to be overcome, or through which in my experience defects most often result are:

1. Separation at the line of coaptation and sloughing may result from tension on the sutures caused by tying too tightly in the effort to force the parts together when the mucoperiosteal flaps have been insufficiently freed from the bone surfaces, or are too scant to cover the palatal opening without tension.

2. The contraction of scar tissue following the granulation process that reduces the size of the aperture during the weeks or in some cases months following the previous operation usually gives a more or less funnel shape to the hole with the slope, more marked in a direction from above downward toward the outer surface. The effect of this is that if a complete paring of the tissue at the inner border of the open space is made entirely through from the palatal to the nasal surface much valuable tissue will be lost unnecessarily. If the raw surfaces are secured by splitting the tissue without paring the borders, there is too much tendency to resumption of the original form of the tissue borders during the healing process and this is not favorable to union along the line of tissue coaptation. Usually a sufficient paring can be made to secure raw contact surfaces without serious tissue loss, by careful estimation of the portions of the flap borders that will meet when sutured.

The first of the difficulties enumerated that are due to tension should be overcome by freeing the mucoperiosteal flaps from the bone surfaces as for uranoplasty according to the modified von Langenbeck method, but there is an added adverse factor in the cicatricial tissue that is formed from previous operative procedures which sometimes makes removal very difficult because the mucoperiosteum under these conditions clings tightly to the bone surfaces, and being less elastic than it is under normal conditions is easily injured if too much force is applied in its separation or if the effect of the stress be in a wrong direction. To avoid unnecessary traumatic injury the firmly attached fibrous bands should be completely severed by a thin-bladed knife at just the right angle to make separation between the soft tissue and the bone without injuring the former, otherwise they will be very apt to cause prompt contraction after operation with disastrous results. The denudation of the tissue border surrounding the opening is best performed by following the slant of the openings sufficiently to give a broad raw surface up to the point at which the constriction is most evident. Splitting from this point all round will then give an added thickness without undue loss of tissue.

3. The greater scar tissue contraction on the nasal surface which results from securing raw surfaces by stripping the mucoperiosteum from the bone surfaces tends to cause retraction, which must be unfavorable to success unless counteracted.

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[1] Brown, G. V. I.: The Speech Relation of Cleft Palate Operation, The Journal A. M. A., Oct. 19, 1912, p. 1440.

4. In the endeavor to secure tissue flaps that may be sufficiently large or free from tension when sutured, the blood-supply may be so reduced that necrotic conditions are inevitable.

5. In many cases the parts have not been properly approximated at the previous operations, yet sufficient union has taken place to keep up uneven muscular action. For example, one side may be a little more forward or higher up than the other. Always when the parts are again freed and sutured unless this inequality is corrected there will be a tendency to reassertion of wrong action of muscular fibers that should coordinate. I have found in large numbers of cases that operation after operation had been uselessly performed, because no form of tension suture could hold against the inequality of the strain of ill-united tissues yet readjustment of the parts to more natural anatomic lines gave prompt and perfect union.

6. Sometimes the tissue covering the bony palate, especially at the posterior central portion, is so thin that the combined periosteum and overlying glandular vascular and mucous structures when raised together to form a mucoperiosteal flap are insufficient to resist the bacterial and muscular counteracting influences.

7. There may be an almost denuded bone surface on one side of the palate and an abundance of tissue on the other.

The inequalities due to wrong coaptation, particularly in the region of the soft palate, must receive due consideration. When the borders are loosened from the bone surfaces and ready to permit coaptation of the flaps in the central line without tension, this must be done so that there will be the nearest possible approximation to normal lines. Not infrequently, when several unsuccessful operations have been previously performed, all one can hope to accomplish immediately is readjustment of the parts which will make complete closure later on more easily secured. When this is accomplished, then any defect that may still remain is readily closed; but if it be overlooked the result may leave the palate in worse condition instead of better. When there is almost total absence of tissue on one side due to extensive sloughing or ill-advised destruction at the previous operation with the tissue full on the opposite side it is sometimes necessary to bring about the transposition of good tissue from one side to the other so that at the final operation there may be at least a reasonable measure of tissue from both sides from which to construct flaps. This is done by making a complete closure of the opening and carrying the flap from the good side to the poorer one in such manner that tension will be so distributed that the opening will occur between the two points. In a number of instances I have been able ultimately to close perfectly palates that seemed to be utterly hopeless because there was practically no available tissue left on a sufficient portion of one side of the bony palate.

A large proportion of the most difficult postoperative defects are found among the patients who have been operated on in early infancy by compression or forcing together of the maxillary bones with silver wire and lead plates in an attempt to close the fissure. These may present any of the foregoing defects and in addition such persons almost invariably have nasal defects, quite often with histories of middle-ear and mastoid troubles also, and deformities of the mouth due to contracted palates and loss of tooth germs through their destruction in the course of the insertion of the wires. Teeth in these cases are frequently found in nearly every conceivable form of irregular development.

The treatment of these mouths naturally involves questions which pertain to health as well as defective speech and facial deformity. In addition to the operative corrections which are the same as for other cases, much may be done by expansion of the upper arch and proper alignment of the irregular teeth. As a rule it is difficult to accomplish this safely by any of the well-known orthodontic methods except with such modifications as may prevent too active separation of the upper maxillae, but in the course of time such treatment may give considerable benefit even though the results can never be as perfect as if there had been no compression of the bony parts.

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# MEDICAL AND SURGICAL WORK ON BOARD A U. S. BATTLE-SHIP

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The question is often asked not only by laymen but also by members of the civilian medical profession: "What do you do aboard ship to pass away your time? You have only men, and they are healthy, or you would not take them." The following brief and more or less general notes on what we have done during the six months between Oct. 1, 1913, and April 1, 1914, on board this ship — U. S. S. *Wyoming* — might serve to dispel some erroneous ideas. This particular period is not taken because it happens to be exceptionally full. Our reports are sent to the Navy Department quarterly, and the foregoing period includes two complete quarters, thereby making the data more easily tabulated.

Every large cruising ship with hundreds of men aboard has to deal practically with the same conditions, depending, to a certain extent, on the part of the world in which it happens to be. We had to be particularly careful during the cruise of the battle-ship fleet around the world. Thousands of men were given liberty in every port visited, in many of which cholera, plague, leprosy, yellow fever and small-pox were endemic.

Life aboard ship is unnatural under the most favorable conditions, and life aboard a battle-ship is particularly so. We are constantly being exposed to frequent, sudden and severe changes of climate. For example, take the past winter's cruise. We spent the winter months in Cuban waters, sailed north March 15, shifted from white uniforms into blue March 18, and on March 20 we ran into a stiff norther with a blinding snow-storm.

A modern battle-ship is perhaps the highest type of concentrated mobile power developed by the mind of man, containing a greater variety of mechanisms than any other structure as yet constructed. It is a mass of machinery controlled by steam and electricity which must be operated by man. Both officers and men are engaged in a hazardous occupation at all times, night and day, such as handling boats in bad weather, working around the machinery, engine- and fire-rooms, drilling with guns and turrets, coaling the ship, handling ammunition, and performing a thousand and one other things which go to make up our daily life. The constant noise, bugle-calls, vibrations, artificial light and ventilation, routine and irregular hours tend to bring out very quickly any weak mental strain of which, previous to enlistment, the man was not aware. The life is one of the "survival of the fittest," and the unfit are soon discharged, either by medical survey, undesirability or court-martial.

The ship to which the following notes refer is the U. S. S. *Wyoming.* It is a battle-ship of the super-dreadnought class, of 26,000 tons displacement. The armament consists of twelve 12-inch guns mounted in six turrets, together with twenty-one 5-inch guns and two submerged torpedo-tubes. It is the fleet flagship of the commander-in-chief of the United States Atlantic Fleet. This ship has been in commission one and one-half years, during which time I have served on board as the senior medical officer. Our complement of officers and crew comprises a total of 1,157.

The sick-quarters are ample, well-arranged and thoroughly equipped. They consist of the sick-bay proper, containing twenty-four bunks; an isolation ward of four bunks; an operating-room with all the modern sterilizing apparatus, pedal sinks, lights, etc.; bath-room; a venereal dressing-room; dispensary, and surgeon's office. We have two "battle dressing stations," both below and behind armor, which would be manned during battle, the present sick-quarters being abandoned. Our equipment is practically perfect, instruments, microscopes, test cases, dressings, drugs, typewriters, medical books and weekly medical journals being liberally provided by the Bureau of Medicine and Surgery of the Navy Department.

Our peace working force consists of a junior medical officer, a hospital steward, who is an expert dispenser of drugs, and an excellent clerk, seven hospital corps men who are trained attendants, and myself. During battle twenty members of the crew are detailed for special duty as first-aid men.

During the past six months we have visited New York; Hampton Roads, Va.; Malta; Naples, Italy; Villefranche, France; Culebra, U. S. W. I.; Guacanayabo, and Guantanamo, Cuba. We have cruised approximately 15,000 miles. We have passed through four separate periods of target practice, a four-hour speed run and an endurance run of twenty-four hours.

The fleet is usually accompanied by a hospital ship, and we endeavor to send all of our serious cases, contagious and chronic cases, etc., to her; but, of course, when we are at sea this is not practicable. Then again, as there is only one hospital ship, it is obviously impossible for her to accompany all of the ships of the United States Navy at one time.

We have many large naval hospitals situated in the large ports on the Atlantic and Pacific coasts of the United States, and also in Honolulu, Yokohama, Manila and Samoa. When a cruising ship gets in touch with these hospitals the cases unsuitable for aboard ship are immediately transferred. We must constantly keep before us the object of a man-of-war, but we must also use good judgment and not transfer patients who will soon recover aboard ship.

It might be stated here that a medical officer alternates between duty aboard ship and duty ashore, usually the length of each period being three years.

The young medical officer has a tendency to transfer more cases than necessary before he has become accustomed to the peculiarities of naval life. He brings with him from civil life ideas of "absolute quietness," "milk diets," a "large, inexhaustible and extremely varied supply of drugs," etc.; but he soon becomes accustomed to the use of a small but necessary collection of medicines and his "milk diet" consists of evaporated cream from cans, or soups. Noise does not seem to have much effect on the bluejacket. He grows so accustomed to it in his daily life that the firing of a salvo of 12-inch guns from the deck over him does not disturb him in the least. Target practice has become so common that some of the sick sleep calmly through it, and a convalescent from appendicitis does not show a rise in temperature of even a tenth of a degree.

Before I present a tabulation of our work it might be stated that the clerical work of our department is of no small detail. The records of all injuries, no matter how insignificant, and notes on all diseases must be recorded carefully on each man's individual health record, and particular attention is given as to whether or not the injury or disease is in the line of duty. This record accompanies the man throughout his entire enlistment and serves as important memoranda for succeeding medical officers. After expiration of enlistment this record is forwarded to the Navy Department and kept on file for future use by the Pension Bureau.

We also have quarterly and annual reports, sanitary reports, reports of various boards, laboratory reports and the careful filling out of a man's discharge papers on expiration of enlistment.

Following is a brief record of some of the medical, surgical and hygienic conditions with which we have dealt aboard this ship during the six months mentioned. The greater number of the major operations were performed when we were under way, sometimes in bad weather, and at other times when we were engaged in battle maneuvers at full speed. The junior medical officer was absent about two months on special temporary duty in Haiti during one of the recent political disturbances. During that time a member of the hospital corps acted as my first assistant. The hospital steward administered anesthetics.

The bugle announces sick-call at 8:30 o'clock every morning. The men present themselves and there are usually between fifteen and forty who need attention. Those actually on the sick-list are excused from all duties and are placed in the surgeon's division. The signed report of the number of sick is sent to the commanding officer before 10 o'clock. The daily average number on the sick-list for the past six months has been 8. There is an evening sick-call at 8 o'clock for any special cases. Naturally, frequent calls are made at the sick-bay at odd hours.

Under the heading of medicine we have had the usual bronchial and intestinal diseases, Bright's disease, lobar pneumonia, tapeworm, a great variety of skin affections, tuberculosis, measles, mumps, malaria, erysipelas and enuresis.

Various forms of insanity, epilepsy and milder mental affections were dealt with. One is sometimes called as a witness, either common or expert, when one of these persons commits an offense.

While in the tropics we treated a number of severe sunburns, stings by jelly fish, cases of dengue and thermic fevers.

Extraction of teeth was a common occurrence.

Heat prostrations while at work in the fireroom provided some cases.

We had four deaths. These were due to drowning. One of our boats capsized. Three bodies were lost. One man was pulled out of the water in an unconscious state. We tried the usual means of resuscitation, but to no avail. One other death, that of our late commanding officer, occurred, but at a hospital four days after transfer.

RECORD OF SURGICAL WORK DURING SIX MONTHS

| *Operations:* | *No.* | *Anesthetic* |
|---|---|---|
| Appendicitis | 5 | Ether |
| Hernia, inguinal | 8 | Ether |
| Varicocele | 2 | Ether |
| Osteotomy (metacarpal) | 1 | Ether |
| Adenectomies | 3 | Ether |
| Hemorrhoids (clamp and cautery) | 2 | Ether |
| Amputations: | | |
| Right arm, elbow | 1 | Ether |
| Index-finger | 1 | Cocain |
| Pterygium | 5 | Cocain |
| Circumcisions | 7 | Cocain |
| Salvarsan and neosalvarsan, intravenously | 28 | |
| Aspiration, chest | 1 | Ethyl chlorid |
| Nasal polyps | 2 | Cocain |

Innumerable abscesses, boils, cellulitis affections, buboes, ingrowing nails, etc., under local anesthetic.

*Injuries:*

Dozens of cases in which cinders, coal-dust, pieces of steel, etc., had become embedded in the cornea.

Hundreds of cases of mild lacerations and cuts which required one or more stitches.

Many cases of sprains and bruises.

| *Fractures:* | |
|---|---|
| Compound comminuted of fibula opening ankle-joint | 1 |
| Simple, multiple, of tibia and fibula | 1 |
| Metacarpal bones | 5 |
| Phalanges | 2 |
| Nasal bones | 5 |
| Ribs | 1 |

| *Genito-Urinary Diseases:* | |
|---|---|
| Syphilis | 12 |
| Gonorrhea | 62 |
| Chancroid | 45 |

Wassermann tests are obtained when we are near a hospital or a hospital ship.

Sounds were frequently passed and bladders irrigated.

A special room is fitted up for venereal prophylaxis and any man presenting himself with a venereal disease, who has not taken prophylaxis, is subjected to disciplinary measures. Exceptions are made for an extended liberty or leave where there is lack of facilities.

| | |
|---|---|
| Vaccinations | 254 |
| Typhoid vaccine | 10 |

These are men who for reasons of unexpected transfer, etc., have not been properly protected at training-stations.

| *Laboratory Examinations:* | |
|---|---|
| Urine | 282 |
| Sputum | 55 |
| Blood | 8 |
| Pus | 13 |

In addition to the foregoing, which may be considered as being directly in the province of a medical man, the following other duties have been performed.

Two hundred and ninety-eight men were examined for transfer to other ships. This is a routine examination and consists in examining the heart, lungs and inguinal rings; looking for venereal diseases, and noting the general physique and cleanliness. A similar examination, but a little more complete, is made of all men joining the ship. During these examinations the health records and enlistment records are verified and any corrections made. Nine men were examined for reenlistment.

The eyesight of all gun-pointers, men in the range-finder group, spotters, signalmen, etc., were examined as a routine by the vision test-card.

Commissioned and warrant officers are examined carefully once a year to determine whether or not they are physically fit to take the prescribed walk every month, and as to their physical fitness for sea duty. Fifty-nine officers were examined in January.

Divers are examined before they go down; diving is not unusual, as this is necessary when anchors are lost, when torpedoes go astray and when for some reason it is necessary to examine some valve in the hull of the ship. All men are examined before engaging in any official boxing contest.

All fresh provisions, meats, ice-cream, etc., were examined and passed on by a medical officer before they were accepted.

Weekly and, sometimes, more frequent lectures or talks to the crew on venereal prophylaxis, personal hygiene and first aid were carried out.

Special instruction in first aid and transportation of the wounded to a special group of men, detailed for such duty in the medical department during battle, was given at frequent intervals.

Special instruction, for one and one-quarter hours, five days a week, to the hospital corps in common-school branches and on the subjects pertaining to our special department is compulsory.

Frequent examinations, particularly for the percentage of carbon dioxid of the air in the various compartments below decks, and routine examinations of the water distilled for the determination of sodium chlorid is made. It can readily be conceived how careful we must be in this matter.

The senior medical officer inspects daily the ship's cells, water-closets, wash-rooms, barber-shop, galleys and pantries, and notes, at all times, the state of cleanliness among the crew.

Once a week, in company with the commanding and executive officers, he makes a complete inspection of the whole ship, including the holds, store-rooms and living-spaces. Any recommendations regarding cleanliness and general sanitation are made to the captain. A complete inspection of this ship takes about four hours.

The regulation of the heating and ventilating system is under our complete supervision, and this is no small matter aboard a ship of this size.

Briefly, our system of heating is what is called the "indirect heating and ventilating system." The air is drawn through numerous ventilators by means of fans. It then passes over a collection of steam coils called thermotanks, where it is heated, if necessary, and then distributed to the various compartments. Constant supervision of the thirty-one blowers, twelve thermotanks, various hatches, etc., must be kept.

Besides all this, the medical officers are ordered on various boards, courts martial, courts of inquiry, boards of investigation, etc.

When arriving at a foreign port the medical officer acquaints himself with the prevailing diseases, quality of the water, and anything which may be of value as to the recommendations which he may make to the commanding officer concerning the liberty of the crew.

In January, while we were engaged in war maneuvers off Culebra, U. S. W. I., the junior medical officer with members of the hospital corps landed and engaged in sham battles.

There are weekly and daily drills such as battle-drills (general quarters), fire-drills, abandon ship, landing force, fire and rescue, man overboard, etc., in which we all have our station.

From the foregoing it will be seen that our work is varied and rather extensive in its scope. When at sea one cannot call in a specialist or a consultant. We must be prepared to amputate a leg, do an appendectomy, trephine a skull, perform a mastoid, enucleate an eyeball, or extract a tooth.

We must be ready to diagnose and treat pneumonia, immediately recognize and isolate contagious cases, be watchful for feigned illness, and our microscope must be in use constantly.

The medical officer must have the military efficiency of the ship in mind at all times and keep all the men, if possible, at their duties. He must know men and learn to command them.

The successful naval and the successful military surgeon must combine in himself the qualities that make a good doctor, a successful surgeon and a hygienist of the highest order.

Our duties and the conditions we should have to meet in time of battle will not be discussed here.

It can readily be seen that military organization, our proximity to the sphere of activities, and a well-equipped department are the conditions which make possible the accomplishment of the foregoing.

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# THE COMPARATIVE VALUE OF MODERN FUNCTIONAL KIDNEY TESTS

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The great importance if not absolute necessity of functional kidney tests prior to operation as well as for diagnostic and prognostic purposes is now conceded not only by urologists but also by the profession at large. Notwithstanding this fact, a great difference of opinion exists as to the relative value of the various tests used at present. Rovsing prefers the urea test. Thomas of Philadelphia declares chromo-ureteroscopy with indigocarmin the most valuable. Geraghty and Rowntree exclude other tests as unnecessary if phenolsulphonephthalein be used. On the other hand, Ware of New York adduces evidence to show that the latter is practically valueless. Kapsammer asserted that the phlorizin test is even more conclusive than exploratory incision, while, going to the opposite extreme, Gaillard of Philadelphia in a recent article mentions the phlorizin, phenolsulphonephthalein, urea and the other functional tests only to condemn them. He considers them a waste of time and states that microscopic examination of catheterized ureteral specimens give positive proof of all we desire to know regarding renal sufficiency and insufficiency.

Especially since the introduction of phenolsulphonephthalein by Geraghty and Rowntree, much has been written regarding the practical value of these tests. In the medical literature of this country one finds almost weekly new publications based on experiments with that drug. In fact, the whole question of renal function seems to center around the phenolsulphonephthalein output. It seems to me that other tests have been recklessly and unjustly abandoned in favor of phenolsulphonephthalein, and I would venture the opinion that the question of the reliability of functional kidney-tests has not been greatly advanced by the application of a single test only. It therefore seems appropriate to compare some of the older tests with the phenolsulphonephthalein, in order to settle the question as to whether or not the application of one test is sufficient and if the phenolsulphonephthalein test really deserves the unlimited confidence which, especially on the American continent, it at present enjoys.

This report is based on the application of 108 tests, using in the majority of cases after catheterization of the ureters the phlorizin, phenolsulphonephthalein and urea tests simultaneously for the determination of comparative functional value. In many cases in which conditions warranted it, the determination of total renal function has been accompanied by blood cryoscopy, and in other instances in which cystoscopic features seemed to indicate its application, indigocarmin has likewise been used.

I wish to state that in order to speak authoritatively on the efficacy and value of renal functional tests, one must be thoroughly familiar with the technic of their employment. This is particularly true with the phlorizin test. The slightest error may be responsible for a negative or poor result. Unless the phlorizin crystals be entirely dissolved and the solution recently prepared, the excretion of sugar will either be late, small in amount or altogether absent. It is possible that a great deal of the adverse criticism directed against phlorizin is due to this error in technic. Likewise with the phenolsulphonephthalein test, one must be careful to inject the entire amount of the dye into the vein and also to use ureteral catheters of sufficient size and equal caliber. It is true that leakage of urine does occasionally occur along the sides of the catheters. This objectionable feature can be entirely obviated, however, by the use of tapered occlusive catheters.

## METHOD

The method of procedure in this series of cases was as follows: An ordinary examining cystoscope was first introduced for the purpose of determining the general cystoscopic features such as the outline of the sphincter, the appearance of the trigon, fundus, etc.

After the withdrawal of this instrument the double catheterizing cystoscope was immediately inserted and the ureters catheterized to the pelvis of the kidneys. Whenever a catheter was inhibited in its progress, careful note was made of the distance of introduction. Three sets of two bottles, each numbered 1, 2 and 3, were kept ready for use. They were labeled R and L and in them was collected the urine from the right and left kidney, respectively. As soon as the ureters were catheterized, 2 c.c. of a 0.5 per cent. phlorizin solution were injected intramuscularly. While the appearance of sugar was being awaited, enough urine was collected in bottles numbered 1 for microscopic examination and for the comparative quantitative urea estimation. As soon as the reduction of heated Fehling's solution contained in the test-tubes became apparent on both sides, the bottles numbered 1 were changed for the bottles numbered 2 and the urine collected for fifteen minutes. At the expiration of this time 1 c.c. of a phenolsulphonephthalein solution containing 0.06 per cent. of the dye was injected intravenously. The urine from each kidney was then permitted to flow into the two test-tubes containing a 25 per cent. solution of sodium hydroxid. As soon as the characteristic discoloration occurred in both tubes, the time of appearance was recorded in the usual manner and the urine collected for fifteen minutes in bottles numbered 3.

In cases of urinary obstruction in which operative procedure was contemplated, an estimation of total function was made by means of blood cryoscopy and by the determination of the amount of phenolsulphonephthalein contained in the bladder-urine during a period of two hours and ten minutes after the injection of the dye.

Following these tests a note was made of the microscopic findings, particular stress being laid on the presence of leukocytes and degenerated small round epithelial cells. The amount of urea was determined by two Doremus ureometers, and the quantity of sugar by means of two Lohnstein saccharimeters. The quantitative phenolsulphonephthalein estimations were made by means of colorimetrically graded test-tubes as described by Hugh Cabot. These were found sufficiently accurate for ordinary practical purposes.

### RESULTS

In normal kidneys, after the injection of phlorizin, sugar made its appearance in the urine in from nine and a half to thirty-one minutes. The average interval was 18 $^1/_{10}$ minutes on the right and 17 $^8/_{10}$ minutes on the left side. The quantity of sugar varied from 0.1 to 3.2 per cent., and averaged 1.1 on the right and 1.08 on the left side. The amount of urea averaged 0.14 per cent. on the right and 0.16 on the left side. The time of appearance of phenolsulphonephthalein varied from 3 to 9½ minutes. The average interval was 4 $^{17}/_{18}$ minutes on the right and 5 $^1/_{18}$ minutes on the left. The amount of phenolsulphonephthalein varied from 2 to 30 per cent., and averaged 15.6 per cent. on the right and 16 per cent. on the left.

In cases of unilateral pathologic kidneys, sugar appeared after phlorizin injection in from 18 to 65 minutes, averaging 35 minutes, while it was excreted from the normal kidney in from 10 to 25 minutes, averaging 15 $^7/_{10}$ minutes. The amount of sugar in the same pathologic cases varied from 0.3 to 0.78 per cent., averaging 0.29 on the functionally insufficient side, while on the normal side the amount varied from 0.44 to 4 per cent., and averaged 1.91. The amount of urea varied from 0.002 to 0.011 per cent., averaging 0.007 from the functionally insufficient kidney and from 0.013 to 0.15 per cent., averaging 0.04 from the normal kidney. In unilateral as well as in bilateral pyelitis the time of appearance of phlorizin and phenolsulphonephthalein as well as the amount of phlorizin, phenolsulphonephthalein and urea was the same on both sides.

### CONCLUSIONS

1. In normal cases the time of appearance of sugar and phenolsulphonephthalein is comparatively the same on both sides.
2. In normal cases the phlorizin, phenolsulphonephthalein and urea tests show almost identical values for both kidneys, their efficiency as comparative tests thus appearang to be about equal.
3. In pathologic cases all three tests show almost equally low values on the diseased as compared with the healthy side, thus demonstrating their almost equal practical value.
4. The simultaneous application of the preceding tests in the manner described tends toward greater accuracy of results, is not especially time-consuming, is not complicated and does not require more than the ordinary skill, which can be attained by an intelligent nurse. Moreover, it gives positive assurance as to which kidney is performing the greater amount of work, thus rendering unnecessary a repetition of ureteral catheterization for the purpose of gathering additional evidence regarding renal functions.
5. In pathologic cases a coincident diminished functional value on one side in all three tests points unmistakably to a marked defect in the corresponding kidney. This in the presence of a normal functional value on the opposite side, and satisfactory total functional values as ascertained by blood cryoscopy, the bladder phenolsulphonephthalein test, etc., would permit of the removal of the diseased organ.
6. A single renal functional test may lead to erroneous deductions and does not give sufficient assurance to justify a radical operation such as removal of the kidney.
7. Prior to operation, comparative functional tests should be strengthened by tests of total renal function.
8. The urea test consumes the least time and is accompanied by a minimum of discomfort to the patient. Moreover, it is not based on the elimination of a foreign substance.
9. As compared with the phlorizin test, the phenolsulphonephthalein test is subject to fewer technical errors and is less time-consuming, a factor of no little importance to the patient as well as to the physician. On the other hand, the quantitative estimation of the excreted dye even with the Duboscq colorimeter is subject to a not negligible amount of error, while following phlorizin injection the estimation of sugar by means of the Lohnstein saccharimeter is mathematically correct.

Shreve Building.

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# A CASE OF TAY-SACHS AMAUROTIC IDIOCY WITH A POSITIVE WASSERMANN REACTION *

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The following case is reported not because it is a typical example of Tay-Sachs amaurotic idiocy, but on account of a positive Wassermann reaction having been obtained from the patient's blood-serum, and the possible bearing this may have on the etiology of the affection.

B. L., boy, aged 16 months, Hebrew, of Russian parentage, examined March 3, 1914, was said by the parents to have seemed normal until about 2 months old. He did not take any notice or sit up at the usual time, had never talked and had never attempted to walk. His first tooth was cut when he was seven months old. The child seemed backward in every way and had one convulsion two months prior to the examination in which he lost consciousness, became rigid, the eyes being open and staring. After the attack, he started to cry, then fell asleep. Since this convulsion, the baby had seemed dull and had not helped himself as much as formerly. He drops objects placed in his hand. Other attacks are described as follows: "He will become nervous, red in the face, hold his breath for a second or two, his arms and legs will stiffen, he will then cry."

The child was born at full term, the labor being normal. He is said to have weighed 7 pounds at birth and has contracted none of the infectious diseases of infancy. He is the only living child, the parents having had one other child which died shortly after birth from a "hemorrhage of the navel."

The father and mother are both living and in average health. A paternal aunt, one of twelve children, had convul-

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* Reported at the meeting of the Philadelphia Neurological Society, March 27, 1914.

sions. A maternal uncle had spasms until 9 years of age, when they left him. There is no case of blindness in the family, nor any history of nervous or mental disease except as mentioned above.

On examination the child was found to be well-formed and well-nourished, but with general muscular weakness. The reflexes were preserved and Babinski's sign was present.

Impairment of vision was evident and it was learned that the child had been under the care of Dr. L. Webster Fox. On communication, Dr. Fox gave me a report of the ophthalmoscopic findings, which were as follows: "Double optic atrophy with a red spot in the region of each fovea centralis, surrounded by a whitish or grayish areola." Dr. Fox had seen cases of amaurotic idiocy at Tay's clinic in London and stated that the fundus changes in this case were identical.

Dr. Thomas B. Earley made a Wassermann test of the blood and reported it positive (½ unit). An examination of the cerebrospinal fluid of the child and of the blood of the mother was refused.

In 1881, Mr. Warren Tay[1] of London presented a case in which the baby, then 1 year old, had been noticed at the age of 2 to 3 weeks to have very little power in holding up its head or of moving the extremities. This was a weakness, not an absolute paralysis. The child seemed cerebrally deficient. With the ophthalmoscope, Tay found the optic disks apparently healthy, but in the region of the yellow spot in each eye "there was a conspicuous, tolerably defined, large white patch, more or less circular in outline, and showing at its center a brownish-red, fairly circular spot, contrasting strongly with the whitish patch surrounding it." Some months later, Tay found no change in the child's condition except that the disks were becoming atrophic.

Sachs[2] of New York, delivering the presidential address before the New York Neurological Society in 1896, described a family form of idiocy, associated with blindness, which he designated as amaurotic family idiocy. In this communication, he referred to an earlier paper, read in 1887 before the American Neurological Association, in which he described a similar case under the title "Arrested Cerebral Development with Special Reference to its Cortical Pathology." He concludes that Tay's case and his own are similar in type and collects altogether nineteen cases presenting the same symptom-group.

The chief symptoms as originally described by Sachs are mental impairment, a more or less general paresis or paralysis which may be either spastic or flaccid, with corresponding changes in the reflexes; a diminution or loss of vision with the characteristic eye-ground changes, marasmus; a fatal termination, usually by the end of the second year, and the occurrence of the affection in several members of the same family. Occasional symptoms were nystagmus, strabismus and hyperacuity of hearing. In a later paper, Sachs[3] accepts two additional symptoms mentioned by Falkenheim: explosive laughter and disturbance of deglutition.

Since these earlier papers, cases have been accumulating fairly rapidly in the literature. As far back as 1908, Apert[4] collected eighty-two indisputable cases with twenty-seven additional cases occurring in brothers, sisters or relatives of the eighty-two, but not actually seen by the authors recording them.

Then, as might be expected, came reports of cases more or less closely resembling the original Tay-Sachs type, yet presenting certain distinct differences. Thus Vogt in 1905 described a form of family amaurotic idiocy, beginning in early youth, with gradually oncoming blindness usually associated with paralysis. In this form the characteristic macular changes are not found. Death occurs after several years and the disease shows no predilection for the Hebrew race. Vogt contended that the juvenile form he described and the Tay-Sachs disease represented different degrees of the same process. Gifford[5] quotes Vogt and reports a case of the same type.

Dercum[6] reported three brothers, aged 11, 6 and 2 years, who were normal until the ages of 16 months, 6 years and 2 years, respectively; then developed paresis of the extremities, spastic in type and associated with imbecility. In these cases, although vision appeared defective, an examination of the eye-grounds could not be obtained.

Other cases, more or less resembling the Tay-Sachs syndrome, have been reported by Hirschberg, Gordon, Nettleship, Behr and others.

The pathologic findings are chiefly microscopic and consist primarily in lesions of the gray matter throughout the entire central nervous system, with secondary changes in the tracts of the white matter. The cells are swollen, the nuclei displaced, the Nissl bodies lose their regular arrangement and the neurofibrils are destroyed. According to Coriat, chromatolysis is more marked than neurofibrillar destruction. The optic nerves are atrophied and there is marked involvement of the retinal cells, especially in the region of the fovea centralis. Thickened skull, thickened and adherent dura, pallor and edema of the convolutions have been found. Changes in the blood-vessels have not been reported. I think that none of these findings would exclude the possibility of hereditary syphilis as an etiologic factor.

The chief interest in amaurotic idiocy at present centers about this question of the etiology. Sachs believed it to be a type of agenesis and accepted Gower's term of "abiogenesis" as most fitting. In Sachs' article[3] of 1903 he defends his agenetic theory, but says that "the toxic nature of the degenerative process has been argued from the resemblance of the cell pictures to those found in cases of poisoning of various kinds." Turner[7] reports two cases of amaurotic family idiocy, one occurring in a child not of Jewish extraction, and after reviewing the pathologic findings in his own and previously reported cases, says, "Can syphilis be so certainly excluded from the causation as Carlyll would have us believe?" Turner believed that in both his cases there were points suggestive of syphilis and further quoted Gordon Holmes who had recorded a case of amaurotic idiocy in which the periadventitial cellular infiltration was, in Holmes' opinion, suggestive of congenital syphilis. Turner, however, seemed to consider as equally tenable, the theory of glandular deficiency or anomaly.

Frey does not agree with Sachs that the condition is merely agenetic, but considers the changes found to be post partum and analogous to the state known as amyatrophic lateral sclerosis in adults. This view of Frey's is of especial interest because of the finding of positive Wassermann reactions in a considerable percentage of cases of amyatrophic lateral sclerosis.

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[1] Tay, Warren: Symmetrical Changes in the Region of the Yellow Spot in Each Eye of an Infant, Tr. Ophth. Soc. U. Kingdom, i, 56.

[2] Sachs: New York Med. Jour., May 30, 1896.

[3] Sachs: Jour. Nerv. and Ment. Dis., 1903, xxx, No. 1.

[4] Apert: Semaine méd., Jan. 15, 1908.

[5] Gifford: Ophth. Rec., 1912, xxi, No. 11.

[6] Dercum: Jour. Nerv. and Ment. Dis., 1897, p. 396.

[7] Turner: Brit. Jour. Child. Dis., 1912, ix. 193

Coriat[8] holds that Tay-Sachs disease is not due to any arrest of development because of the normal myelinization, and asserts that the macroscopic and microscopic changes are not in any sense those of idiocy. Furthermore, he contends that his cases showed normal mental characteristics up to the ages of 4 and 10 months, and says, "The disease, therefore, is not really an idiocy, but a form of dementia." Coriat suggests the name of "amaurotic family dementia" as being more appropriate than "amaurotic family idiocy."

Studies in the metabolism of amaurotic idiocy by Heiman, Bookman and Crohn[9] in 1912 revealed nothing abnormal.

Views as to the importance of hereditary syphilis as a cause of idiocy have undergone considerable change since the introduction of the Wassermann test. Dean,[10] in a most instructive article, after citing the findings of numerous observers who had examined the blood-serum of idiots by the Wassermann test, gave the results of his own work in the examination of 330 inmates of an asylum for idiots at Potsdam, in which he found the reaction positive in fifty-one cases, or 15.4 per cent. He also found that the younger the patient, the higher the percentage of positive Wassermanns obtained. Thus, at 10 years or younger, 21.27 per cent. were positive; from 16 to 20 years, 6.06 per cent.; from 21 to 30 years, twenty-four idiots gave three positive reactions, and eight idiots, ranging in age from 31 to 44 years, all gave negative reactions. A striking point in Dean's paper was the fact that of the fifty-one cases giving positive reactions, only seven showed conclusive evidence of congenital syphilis from a clinical point of view.

The lack of certain knowledge regarding the etiology of Tay-Sachs disease, the varied opinions expressed, the character of the pathologic findings and the positive Wassermann reaction in the case which I report would seem to be sufficient ground to reopen the argument that hereditary syphilis may be the cause of amaurotic idiocy. I fully realize that "one swallow does not make a summer," and my chief object in reporting the case is to stimulate interest in the subject with the hope that, as opportunity presents, careful laboratory investigation will throw more light on the point in question.

I wish to express my indebtedness to Dr. Fox for his courtesy in giving me the ophthalmologic report and for references, and to Dr. Earley, who went to considerable trouble and expenditure of time in the fruitless effort to obtain a spinal puncture in the case of the child and an examination of the blood of the patient's mother.

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[8] Coriat: Arch. Pediat., 1913, xxx, 404.

[9] Heiman, Henry; Bookman, Samuel, and Crohn, Burrill B.: Studies in Metabolism of Amaurotic Family Idiocy, Am. Jour. Dis. Child., October, 1912, p. 234.

[10] Brit. Jour. Child. Dis., 1912, ix, 385.

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**Food Poisoning.**—Food poisoning is rarely, if ever, ptomain poisoning; that is an intoxication due to a preformed poison of alkaloidal nature, derived from a breaking down of the protein in the food. The cases which have been carefully worked out in recent years have, on the contrary, proved to be due to infection with specific bacteria, or to intoxication with the toxins or synthetic products characteristic of these microbes.—C. E. A. Winslow.

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# HOW DEEP SHOULD THE TUBE BE INTRODUCED IN INTRATRACHEAL INSUFFLATION? *

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In my first description of the procedure of intratracheal insufflation as I developed it for practical use in intrathoracic surgery and for anesthesia, I stated that "a long catheter or stomach-tube is introduced through the larynx and pushed down the trachea until it meets an obstacle. The lower end is usually deep in the right bronchus. It is then withdrawn about an inch and a half, which brings the lower end of the tube to about the level of the bifurcation."[1]

The same statement I repeated a year ago in describing insufflation.[2] "After the tube enters the trachea it should be pushed gently forward until it meets with a resistance; the end of the tube is then usually in a deep place in the right bronchus. The tube should then be withdrawn about 5 or 6 cm."

It ought to be clear to any intelligent reader that the resistance which the tube meets consists of the smaller bronchi, the lumen of which is larger than the diameter of the tube. In the literature on the subject, however, a misunderstanding crept in. There are writers who apparently believe that by the resistance I meant the bronchial partition at the bifurcation, and some[3] are even criticizing my supposed statement, because, as they say, they did not find that the tube touches the partition wall. This misunderstanding, however, is of little significance and would not have caused me to write a special article on that subject. A fact of greater importance causes me to write the present article, namely, that practically all surgeons and anesthetists who employ intratracheal insufflation—and the number is now very large—do not follow my repeated advice. It has seemed to them that instead of pushing the catheter first deep into the bronchus and then withdrawing it to the bifurcation, it is a more simple procedure to introduce it from the start only as deep as the bifurcation. After finding that the average distance from the bifurcation of the trachea to the teeth is in an adult about 27 cm., a catheter is now used which has a mark about 27 cm. away from its lower end, and it is simply pushed into the trachea until the mark is at a level with the teeth. This practice, however, as I found out, deprives the surgeons of an important diagnostic point without which they are liable to be led into a serious error. I have observed this result in two cases and I have reason for my misgivings, that it occurs more often than it is suspected.

The diagnostic point in question is to make sure that the tube is indeed in the trachea and not in the esophagus. As a rule, at the time of the introduction, the patient has to be well anesthetized and does not respond with a characteristic reflex cough when the tube passes the larynx or touches the bifurcation; besides, some patients respond with a cough when merely the posterior wall of the pharynx or the entrance of the larynx is touched. The presence or absence of a short reflex cough is no indication where the tube is. The point which is generally relied on to indicate that the tube is correctly placed in the trachea is the appearance of rhythmic expiratory and inspiratory changes of air-pressure at the mouth of the catheter, which can be heard or seen by the use of a bit of cotton. The conclusion is based on the supposition that such respiratory changes could not take place if the catheter were in the esophagus. This supposition and the conclusion are entirely erroneous. The respiratory variations within the esophagus are considerable, and they are present not only in the thoracic, but also in the cervical part of the esophagus.

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* From the Department of Physiology and Pharmacology of the Rockefeller Institute for Medical Research.

[1] Meltzer, S. J.: Med. Rec., New York, March 19, 1910, p. 481.

[2] Meltzer, S. J.: Keen's Surgery, 1913, vi, 971.

[3] Lautenschlager: Berl. klin. Wchnschr., 1913, p. 2093.

These respiratory variations in the esophagus have been used by ourselves and by many others for obtaining a graphic presentation of respiration. I obtained respiratory tracings from my own esophagus about thirty-four years ago. Several years ago Auer and I[4] studied the respiratory changes of pressure at the various levels of the posterior mediastinum by means of a balloon at the end of a tube kept at various depths in the esophagus. The tracing published in the article reporting those studies shows the considerable respiratory variations in the esophagus in the various levels of its thoracic part; they are especially large in the entire lower section, located between the base of the heart and the cardia. In short, the appearance of respiratory variations at the mouth of the catheter is no evidence that the catheter is in the trachea; it may have been inserted in the esophagus. This was the case, as referred to above, in two instances in which I was an eye-witness. Men of experience in handling the method of intratracheal insufflation, who were present, seemed to have been sure that the tube was in the trachea. just on account of the presence of definite respiratory undulations at the mouth of the catheter. In neither of these cases was there any distention of the stomach.

It is well to bear in mind that this is not a necessary result in all cases when the tube is in the esophagus. When the lower end of the catheter is placed in the esophagus only 27 cm. away from the teeth, the lower end of the tube may still be above the base of the heart, and air and ether which come out from the lateral opening of the catheter will escape more readily upward through the esophagus and the mouth than into the stomach, especially when the reflexes and the tonus of the esophagus are completely abolished by the previous deep etherization. Furthermore, the upward escape of ether through the pharynx might even keep up the anesthesia; it is then a sort of pharyngeal anesthesia.

In my first paper on pharyngeal insufflation, about two years ago,[5] I stated that by this method animals were brought easily and profoundly under the influence of ether anesthesia, so that sometimes the spontaneous respiration disappeared, to return only half an hour after the ether has been discontinued, during which time, of course, artificial respiration had to be maintained. Similar results I obtained recently by inserting the tube in the esophagus, the lower end of the tube being in the upper section of the thoracic part. Not only did the animal become deeply narcotized, but it also lost its spontaneous respiration and had to have artificial respiration for several minutes.

In parenthesis I wish to make the following remark concerning the use of pharyngeal insufflation for anesthesia:

While I was one of the first to recognize and state the fact that pharyngeal etherization is capable of producing profound anesthesia, I did not then say anything in favor of its use. Now I do not hesitate to go on record as advising against its use. Of the various reasons I have for the stand I take, I shall mention only this one, namely, that this method is capable of driving infectious matter from the pharnyx into the lungs and there causing injury and infection. If the use of pharyngeal anesthesia should happen to be extensive and the results are honestly reported, I have no doubt that the number of postoperative aspiration pneumonias will be greater than after the usual drop-method of anesthesia. It could hardly be otherwise. In the drop-method the aspiration of foreign matter is accomplished by an inspiration which is greatly weakened by the anesthesia; while in pharyngeal insufflation that foreign matter is driven through a non-sensitive relaxed glottis by a virile mechanical insufflating force. With intratracheal insufflation it is, of course, just the opposite; the virile mechanical force of the insufflation is employed to keep off the foreign matter from entering into the larynx instead of driving it in.

What I said here of pharyngeal anesthesia holds true, of course, also of "esophageal anesthesia," that is, if the intratracheal tube, instead of getting into the trachea, is inserted into the esophagus at a depth from which air and ether escape readily upward. The insufflation, instead of preventing the occurrence of aspiration of foreign matter into the respiratory tubes, will rather assist in facilitating such an occurrence. These possibilities ought to be kept in mind when analyzing and collecting certain data for statistical purposes with reference to the occurrence of complications and sequelae attending the use of intratracheal insufflation.

At any rate, the appearance of respiratory phenomena at the mouth of the intratracheal catheter is no evidence that it is in the trachea; it might be in the esophagus and at a place from which air and ether escape upward and thus maintain anesthesia. I have witnessed two cases of the kind, and there is a well-founded suspicion that more of them have occurred, especially in the hands of uncritical men.

*A reliable evidence that the catheter is in the trachea is the encountering of an undoubted resistance, while pushing the catheter downward*—provided, of course, that stenosis or a diverticulum of the esophagus do not come into consideration. When a catheter fitting for an adult is pushed down into the trachea about 33 cm. distance from the teeth, the catheter is bound to meet bronchi of a lumen smaller than the diameter of the catheter and therefore cannot be pushed farther. If it can be pushed down still farther, the catheter is surely in the esophagus, and the lower end of it is still about 6 or 7 cm. above the cardia. While a catheter may bear a mark which indicates a distance of 27 cm. from the lower end, in order that it may be known safely to what point the catheter should be withdrawn again, it has to have also a mark at a distance of 33 or 35 cm. from the lower end. If the catheter, while pushed downward into the trachea, does not encounter any resistance when it reaches the last-mentioned mark, it can be safely assumed that it is not within the trachea and therefore ought to be immediately withdrawn. With exceptionally tall persons, perhaps an allowance of 2 cm. more may be made; but under all circumstances a resistance must be looked for and not missed. The practice of inserting the tube only to a place above the bifurcation must be discontinued.

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[4] Meltzer and Auer: Jour. Exper. Med., 1910, xii, 34.

[5] Meltzer, S. J.: Pharyngeal Insufflation, a Simple Method of Artificial Respiration, The Journal A. M. A., May 11, 1912, p. 1414.

In this connection I wish also to urge the discontinuance of the use of catheters which have only lateral openings. For the sake of etherization as well as for an efficient artificial respiration when needed, it is of some advantage to have the opening at the end of the catheter, as I have stated in previous papers. I shall not, however, enter here on a special discussion of this point.

Rockefeller Institute for Medical Research.

# THE CULTIVATION OF THE PLASMODIUM FALCIPARUM IN VITRO *

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In 1911, C. C. Bass[1] of New Orleans reported the successful cultivation of the plasmodium of malaria *in vitro*. He stated that he had been able to accomplish this by maintaining anaerobic conditions and a temperature of 40 C. (104 F.). Following these suggestions, Sinton[2] of London as reported in August, 1912, attempted the growth of the organisms from five patients, but he was not successful in any case. One of the reasons for his failure became apparent two months later when Bass, in conjunction with Johns, published[3] in detail his technic, which included, besides the facts previously mentioned, the addition of a small amount of dextrose to the collected blood. Bass and Johns did not explain the action of the dextrose, but stated that they thought it had other influences than the control of oxygen, possibly by reason of the largeness of its molecule decreasing the permeability of the red blood-cells to substances in the serum that were deleterious to the organisms. They stated that by their technic, the details of which need not be repeated here, they had succeeded in cultivating the *Plasmodium vivax* from six patients and the *Plasmodium falciparum* from twenty-nine; and Johns had previously reported the growth of the *Plasmodium malariae* from one case. In some cases they were able to maintain the growth through the fourth generation. They found, however, that growth did not occur beyond the first generation unless the white blood-cells were removed, and this they explained on the theory that the leukocytes, when present, destroyed the merozoites.

In some recent work with this method an interesting observation was made which is worthy of note. The case was from the service of Dr. Alfred Stengel, and Dr. O. H. Perry Pepper was associated with me in the study of it. The blood was taken for culture one hour after a chill and showed at that time, in addition to crescents of the estivo-autumnal type, many small ring-forms with only a small amount of nuclear chromatin and without pigment. There were no forms showing further development. Smears from the culture fifteen hours later showed that the rings were increased in size and there was more chromatin, but still no pigment. The crescents were less crescentic and more oval in outline. The twenty-four-hour smears presented even larger rings, the protoplasm filling the vacuole in some instances, the chromatin spread out and dividing, and pigment had appeared. The crescents were still more rounded and their protoplasm stained less deeply. After forty-eight hours large schizonts and segmenting forms with definite small masses of pigment had appeared, and in some cases the pigment had divided into from two to fifteen parts. The crescents could by this time be made out only because of their pigment, the outlines of the protoplasm having disappeared. Finally, in the sixty-one-hour smears from the culture, some of the red blood-cells presented small ring-forms, precisely similar to those present in the blood at the time of its collection. There were present no older forms of the asexual cycle in these smears, and similar small rings had not been observed in any of the intermediate smears. Thus it would appear that in this case the beginning of a second generation had occurred without the removal of the leukocytes.

# RESULTS OF AN IMPROVED PUBLIC WATER-SUPPLY AT COHOES, NEW YORK

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For many years Cohoes suffered from the inevitable results of a polluted public water-supply. The average death-rate per hundred thousand for typhoid fever for the past ten years was 83.8. Previous to 1911 Cohoes used the grossly polluted Mohawk River water without purification. In July, 1911, a gravity mechanical filter-plant was installed.

Chart 1 shows the marked reduction in the rates for typhoid fever and diarrhea and enteritis which promptly followed the furnishing of filtered water. The seasonal prevalence of both typhoid fever and "enteritis of children" was what might be expected in cities with polluted water-supplies; that is, excessive rates prevailed in the winter and spring months.

### TYPHOID

A study of the seasonal prevalence of typhoid in Cohoes shows that during the months of July, August, September and October, which period has been termed the "regular typhoid season," the rates for typhoid have not been excessive. The rates from December to June have been very high. In Cohoes from 1908 to 1913, 75 per cent. of the deaths from typhoid occurred from January to June, and if we include December in the winter months, 90 per cent. of the typhoid deaths from 1908 to 1913 occurred in the months from December to June, inclusive. In other words, the months of July, August, September, October and November, including the "regular typhoid season" in which the great bulk of typhoid cases usually occur, furnished only 10 per cent. of the typhoid deaths.

With the seasonal prevalence so sharply defined for a period of many years, it is most interesting to note the effect of substituting a safe for a polluted public water-supply. Here again the expected happens. Chart 2 shows the annual typhoid death-rate by months. The period 1908-1911 (before filtration) is represented by a dotted line. The period 1912-1913

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* From the William Pepper Laboratory of Clinical Medicine.

[1] Bass, C. C.: A New Conception of Immunity, THE JOURNAL A. M. A., Nov. 4, 1911, p. 1534.

[2] Sinton: Ann. Trop. Med. and Parasitol., 1912, vi, 371.

[3] Bass and Johns: Jour. Exper. Med., 1912, xvi, 567.

(since filtration) is represented by a solid line. Enormous reduction since filtration is evidenced in December, January and February, and a very great reduction in March and April. The difference is not so great from May to November. The low rates in the summer months indicate that the Mohawk River water for some reason was much safer from July to October than at any other season. Hence the effect of the filter-plant would be less on the typhoid rates for these months.

ENTERITIS

Diarrhea and enteritis under 2 years is an important factor in our mortality statistics. It probably includes a number of different diseases of diverse etiology.

One large portion of this mortality, the so-called summer diarrhea of children, seems to be independent of water-supply conditions. This mortality has its maximum intensity in July and August. It is greatest in large industrial centers, "mill-towns" and slum-districts of our large cities. A close study of the statistics and the sanitary conditions in our cities[1] shows that if the water-supply is safe, the mortality from diarrhea and enteritis under 2 years is very low during the winter and spring months. On the other hand, it will show that in cities with grossly polluted water-supplies there is a very considerable mortality from diarrhea and enteritis of children during the winter and spring months.

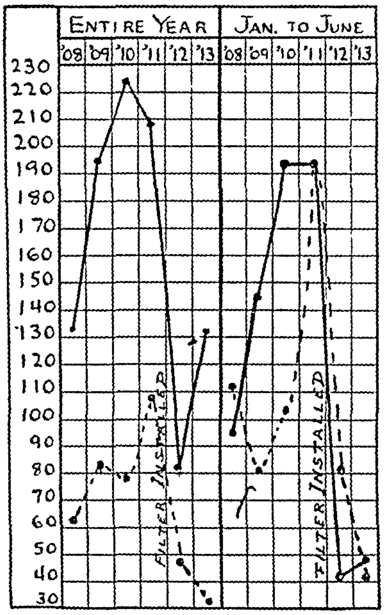

Chart 1.—Annual death-rate per hundred thousand at Cohoes, N. Y. Enteritis is indicated by the solid line and typhoid by the broken line.

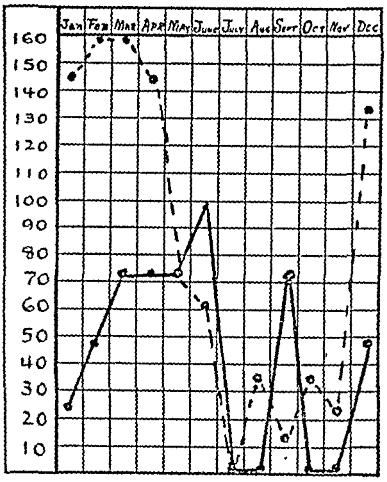

Chart 2.—Annual death-rate per hundred thousand by months at Cohoes, N. Y. The average of typhoid fever during 1908-1911 is indicated by the broken line and the average during 1912-1913 by the solid line.

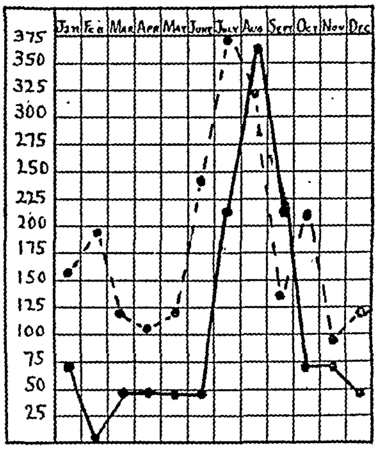

Chart 3.—Annual death-rate per hundred thousand by months at Cohoes, N. Y. The average of enteritis under 2 years during 1908-1911 is indicated by a broken line and the average during 1912-1913 is indicated by a solid line.

Cohoes has the industrial, social and economic conditions which would justify fairly high rates for enteritis in the summer months. In addition, previous to 1912, it possessed rates for enteritis in the winter and spring months which were very high, ranging from 100 to 190 deaths per hundred thousand. Chart 3 shows the striking effect of the filter-plant on these rates. The rate for January fell below 75 and the rates for December, February, March, April, May and June were below 50. The furnishing of filtered water, as might be expected, had little effect on the summer rates, which are probably due to conditions other than water.

It must not be inferred from the foregoing that the results of filtration at Cohoes leave nothing to be desired. Filter-plants are not infallible, fool-proof mechanisms. They are operated by human agency and not always intelligently operated and efficiently controlled, and undoubtedly there are times in the operation of all plants when the purification is inadequate. In dealing with a grossly polluted raw water, a safe effluent is obtained only at the price of eternal vigilance and absolute efficiency at all times. There is such a thing as an unreasonable burden and an unreasonable responsibility for any filter-plant, and the grossly polluted raw water accepted as the burden for many of our filter-plants is like a sword of Damocles, constantly threatening with disaster. The eternal vigilance necessary to prevent the slip which might cause disaster is an imposition of excessive responsibility on any purification plant. The fact that the burden can be borne and under ideal conditions the grossly polluted raw water can be converted into a safe effluent does not justify a *laissez faire* policy in the unrestricted discharge of sewage into the stream.

In streams used as sources of water-supply, sewage treatment should be carried far enough to ensure a raw water at the water-works intakes which would not impose an unreasonable burden or responsibility on the purification plant. By improving the character of the raw water, not only is the "load" on the plant reduced, but also in the case of the inevitable, though perhaps, infrequent accidents an additional safeguard is afforded which the public has a right to demand.

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**Street Accidents in the United Kingdom.**—Consul-General John L. Griffiths at London reports that highway accidents have increased rapidly in the United Kingdom since the introduction of motor vehicles, so that, for the year 1913, there were 2,099 deaths and 42,544 injuries. In the city of London proper, which embraces the mile square in the financial section, 17 persons were killed and 1,210 injured. In the metropolitan police district 579 were killed and 18,365 injured. The number of persons injured by motor vehicles other than street railways increased from 560 in 1910 to about 1,200 in 1913.

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[1] McLaughlin, Allan J.: Sewage Polluted Water-Supplies in Relation to Infant Mortality, Pub. Health Rep., reprint No. 77.

# THE TREATMENT OF FRACTURES BY AUTOPLASTIC BONE PEGS

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Attending Surgeon, University Hospital and
Cook County Hospital
CHICAGO

When a simple fracture of a long bone is immobilized by external splints in such a position that its medullary canal is patulous, an internal callus is produced across the fracture-line as a part of the process of support and repair of the fracture.

The internal callus ossifies and becomes a medullary plug of bone, aiding in the immobilization and giving support to the fragments during the formation and ossification of the permanent callus.

In the physiologic process of the healing of bone the internal callus is a natural medullary bone splint, remaining as long as its support is required by the injured bone, and then gradually absorbed and the medullary canal reestablished, as the permanent callus becomes effective.

If the processes of Nature were imitated in the open operative treatment of simple fractures by bridging the fractures with autoplastic bone pegs, the non-absorbable foreign body proposition would be eliminated.

In the cases reported, bone-splint material was taken from the tibia of the same individual and pegged across the fracture-line, use being made of the medullary space as a canal when practicable.

The following six cases were selected as types of the series to illustrate the application of the bone peg in simple fractures:

Case 1.—*Fracture of both bones of the left leg.*—L. K., American, laborer, aged 33, was admitted to Cook County Hospital, Jan. 10, 1914, immediately following injury.

Roentgenoscopy revealed a spiral fracture of the tibia, with ¾ inch of overlapping of fragments, and a slivered impacted fracture of the fibula (Fig. 1). Manipulation and extension failed to reduce the fracture, evidently because of the impaction of the fragments of the fibula.

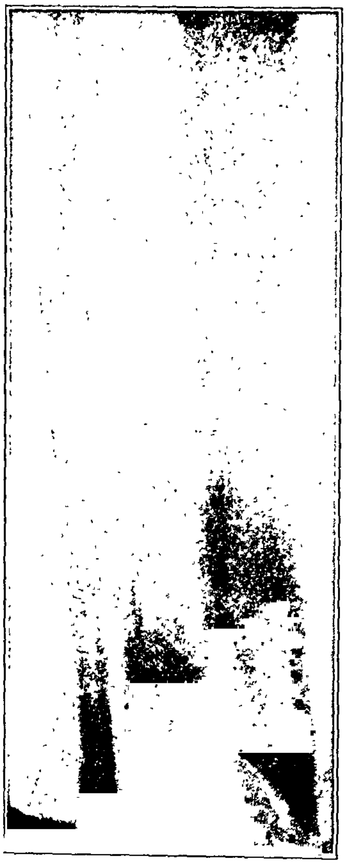


Fig. 1.—Case 1, after attempted reduction; unreduced spiral fracture of tibia with high-up impacted fracture of fibula.

The patient suffered from delirium tremens for one week, after which an open operation was done and an autoplastic bone splint inserted into the medulla of the tibia across the fracture defect. Reduction could not be accomplished until the fibula was fractured with a chisel on a level with the fracture in the tibia. Material for a bone splint, 3 inches long and ½ inch in width and thickness, without periosteum, was taken from the opposite tibia. The medulla of the upper fragment was cleaned out with a sharp spoon so that the bone splint would slip in very loosely. The leg was bent at an angle at the point of fracture and the bone splint was driven a part of its length into the marrow of the lower fragment of the tibia. The lower fragment, containing the projecting bone peg, was manipulated so that the end of the splint entered the medullary opening of the upper fragment, and the leg was then swung into normal position. Muscular contraction held the fragments firmly together (Fig. 2).

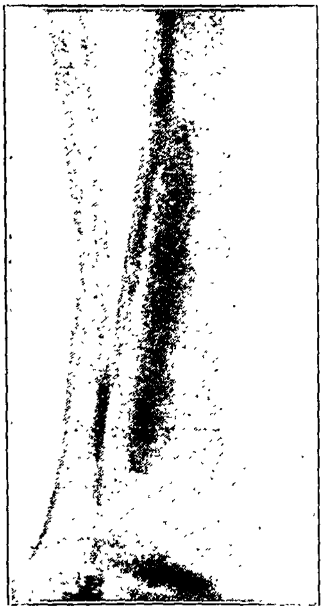


Fig. 2.—Case 1, fifty-eight days after insertion of autoplastic bone splint into the medulla of the tibia; note outline of the bone splint with ample callus between the fragments of the tibia.

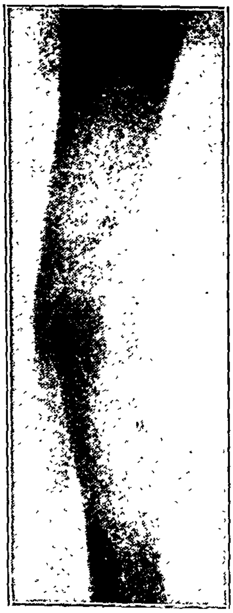


Fig. 3.—Case 2; long spiral fracture of the shaft of the humerus.

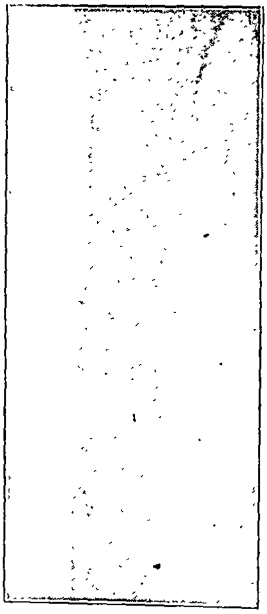


Fig. 4.—Case 2, forty-one days after operation; note shadow of a 5-inch bone peg in medulla of humerus across the fracture defect.

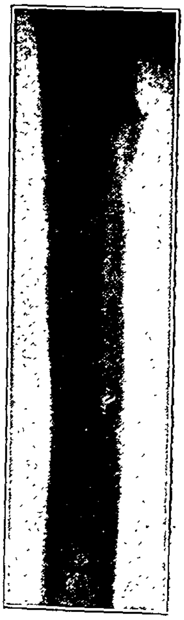


Fig. 5.—Case 2, fifty-six days after operation; note callus formation, apparently following line of spiral.

It was necessary to have the cavity in the upper fragment larger than the bone splint, because the splint could not enter the medullary canal directly in its axis, but must enter in the arc of a circle, the radius of which was equal to the projection of the bone peg above the soft parts, during the manipulation of swinging the lower part of the leg into position.

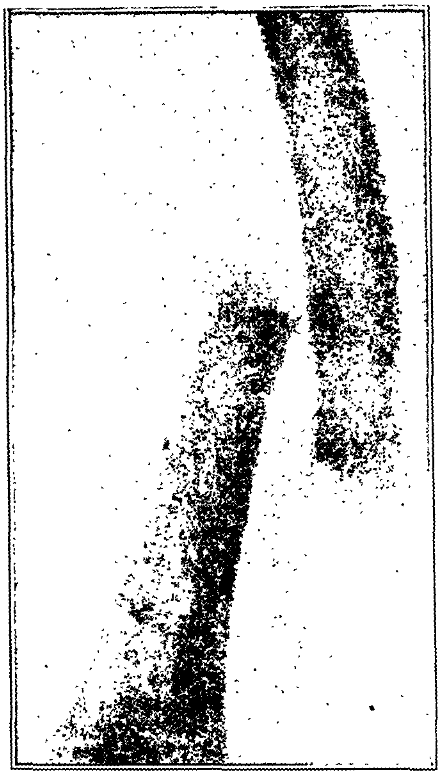


Fig. 6.—Case 3; transverse fracture of shaft of femur with displacement of fragments.

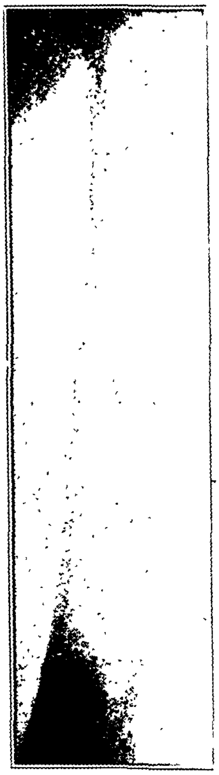


Fig. 7.—Case 3, thirty-one days after operation; note a shadow of the bone peg in the medulla of the femur across the fracture line.

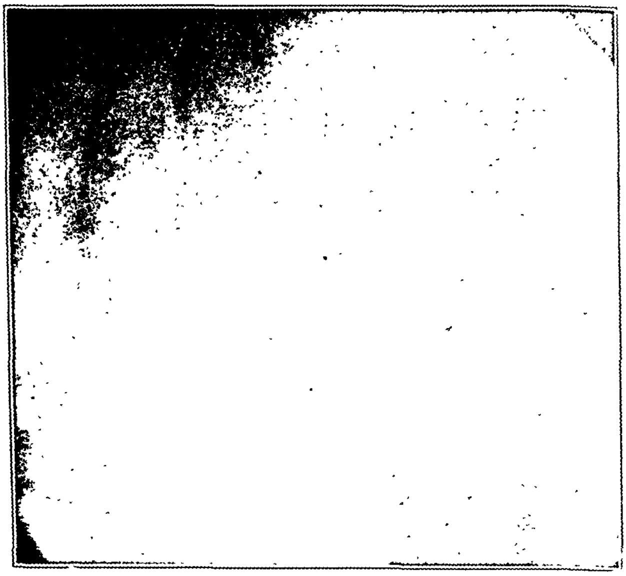


Fig. 8.—Case 4; fracture of the neck of the femur with backward displacement of the upper fragment.

The patient, when discharged, was walking with a painless, flexible ankle and with a substantial callus at the fracture.

Case 2.—*Fracture of left humerus.*—O. S., American, clerk, aged 37, was admitted to Cook County Hospital immediately after injury to arm, with angular deformity.

Roentgenoscopy revealed a spiral fracture with a 3-inch defect and with the fragments overriding 1 inch (Fig. 3).

With the same technic as in Case 1 a bone splint taken from the tibia, 5 inches in length and ½ inch in thickness in each direction, without periosteum, was inserted into the medulla of the humerus, each end of the splint projecting into the medullary canal 1 inch beyond the fracture defect (Figs. 4 and 5). Firm union resulted, with palpable callus and perfect bone line, four weeks after operation.

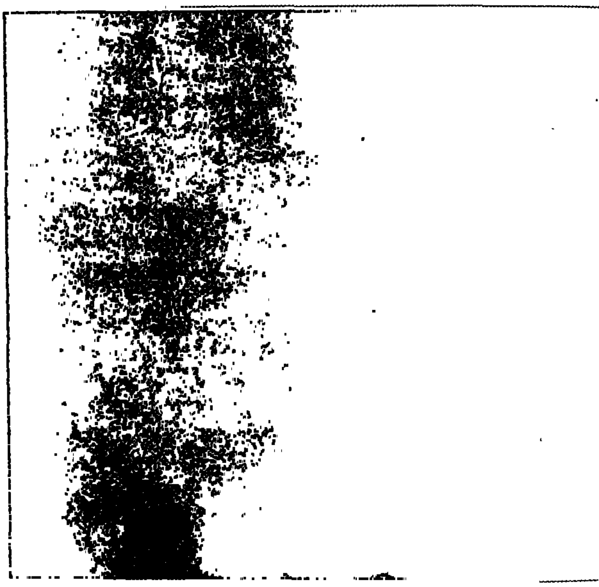


Fig. 9.—Case 4, forty days after operation; note autoplastic bone peg crossing the fracture line in the medulla of the neck of the femur, securely fastening the head and neck to the shaft in their proper alignment and relation.

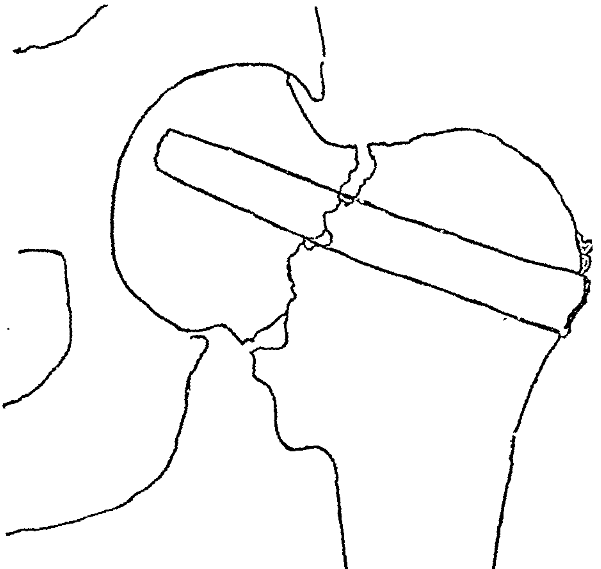


Fig. 10.—Case 4; Roentgen-ray tracing of Figure 9.

Case 3.—*Fracture of the shaft of right femur.*—R. B., Russian Jewess, housewife, aged 63, was admitted to Cook County Hospital suffering from decubitus and pulmonary congestion of the lungs, following a fracture of the shaft of the right femur. Roentgenoscopy revealed a transverse fracture of the shaft of the femur, with overlapping of fragments (Fig. 6).

With the usual technic an autoplastic bone splint, 3 inches long, was placed at the defect in the medulla of the femur. Because of the precarious condition of the patient, spinal anesthesia was used, and a rapid transfer of bone from the tibia of the same extremity was made without appreciable shock (Fig. 7). Convalescence in the Fowler position was uneventful.

Case 4.—*Fracture of the neck of the right femur.*—A. S., Swedish cabinet-maker, aged 47, was admitted to Cook County Hospital after injury by direct violence, with Bryant's line 1½ inches short. Roentgenoscopy revealed a fracture of the neck of the femur, with elevation of the great trochanter (Fig. 8).

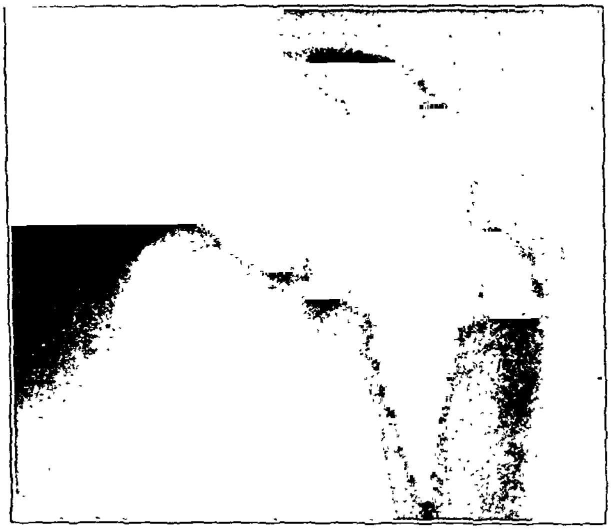


Fig. 11.—Case 5; transverse intertrochanteric fracture of femur with displacement and overlapping of fragments.

Under anesthesia the leg was held in an extension apparatus in the position of normal rotation and length. The great trochanter was exposed and an opening made in the outer compact bony wall of the femur in the axis of the neck. Through this opening a small bone curet was passed, following the medulla of the neck of the femur, to line up the fragments, to make a canal to receive the bone peg and to obtain the length of bone required for the splint. A splint 5 inches long was taken from the tibia, the opening in the compact bone opposite the neck of the femur was enlarged to fit the large end of the splint, and it was driven snugly into position until the small end reached the head of the femur (Figs. 9 and 10).

Case 5.—*Fracture of the right femur.*—W. B., Polish laborer, aged 22, was admitted to University Hospital immediately after injury produced by falling down an elevator shaft. The limb was short 1¼ inches. Roentgenoscopy revealed a transverse fracture of the femur immediately above the lesser trochanter (Fig. 11). Incision over the fracture showed that the upper fragment was rotated and drawn out of position by the muscles attached to the great trochanter. The upper fragment pointed downward, outward and backward, while the lower fragment was drawn up, overlapping the small fragment. The small fragment was held by a clamp while a canal was cut in the axis of the femur shaft, and a bone splint from the tibia fitted to it. The projecting end of the peg was manipulated into the medulla of the lower fragment (Fig. 12).

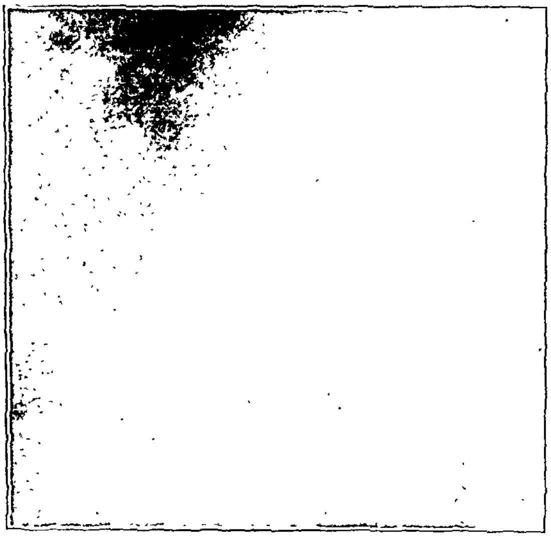
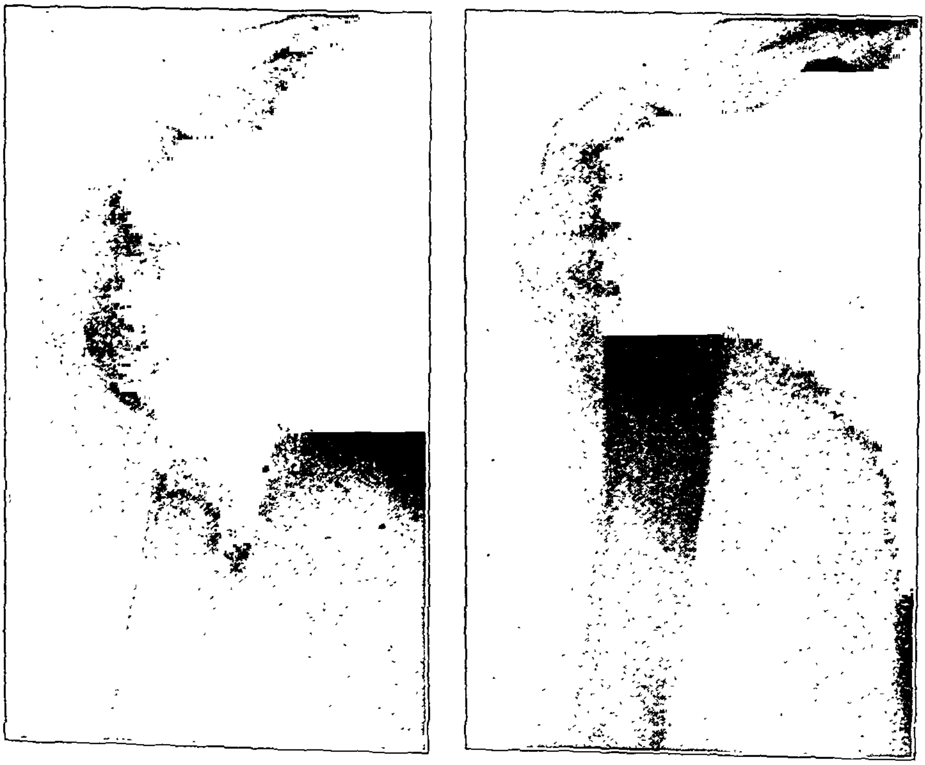


Fig. 12.—Case 5; autoplastic bone peg fastening the neck and great trochanter securely to the shaft in correct rotation and alignment.



Figs. 13 and 14.—Case 6, severely comminuted fracture of the surgical neck of the humerus. To the left, picture taken on admission; to the right, twenty-eight days after operation; note autoplastic bone peg. one end surrounded by callus supporting the cartilage of the head and the other end in the medulla of the shaft of the humerus; mass of splintered bone with callus at outside of fracture.

Case 6.—*Fracture of the surgical neck of the left humerus.*—J. T., Irishman, cook, aged 49, was admitted to Cook County Hospital with injury to shoulder from falling down-stairs (Fig. 13).

Incision over injury showed the compact bony part of the upper fragment slivered into many small pieces, but attached to the circumference of the cartilage of the head of the humerus and radiating from it. The cancellous bone was fractured transversely at the circumference of the cartilage, leaving the cancellous bone of the concave surface of the cartilage intact. One end of a 2-inch autoplastic bone peg was embedded in the cancellous bone underneath the cartilage of the head of the humerus, and the other end of the peg placed in the medullary canal of the lower fragment, the splint holding the head like the handle of an open umbrella (Fig. 14). Three weeks after operation the patient was using his arm, with the head and shaft of the humerus moving together during rotation and other movements.

31 North State Street.

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# THE INCIDENCE OF FIBRINOUS AND BRONCHOCATARRHAL PNEUMONIA IN THE PHILADELPHIA GENERAL HOSPITAL *

ROBERT N. WILLSON, M.D.
PHILADELPHIA

Considerable interest and an occasional good-natured difference of opinion have existed during the past eighteen months, as the result of the determination of one of the medical services in the Philadelphia General Hospital to discriminate sharply between the fibrinous and the bronchocatarrhal types of pneumonia, especially with a view to treating patients suffering from the one condition in cold, and from the other in warm, fresh air. During the years 1911, 1912 and 1913, as shown by me in a previous paper,[1] the mortality from all types of pneumonia on the wards was 61.5 per cent. This is a far higher figure than appears justified by the mere fact that alcoholism and privation have both entered into the experience of the patients. Rather more likely would it appear to some of us that a possible cause of this, and of a still higher death-rate to which reference will be made later, has been the indiscriminate placing of all cases of pneumonia in the cold, outdoor air. Fibrinous or bronchocatarrhal pneumonias, in patients old or young, with febrile or subnormal temperatures, strong or weak, have all been started toward the open-air bridges, almost on the run, once the diagnosis of some form of pneumonia has been determined. All, including myself, have participated in what, on second thought may appear to have been an ill-advised procedure. *Only within the past year* has there been apparent the slightest tendency to retrace the steps from the cold bridge to the warm ward with patients that not only fail to do well, but also suffer manifest harm from the low temperature exposure.

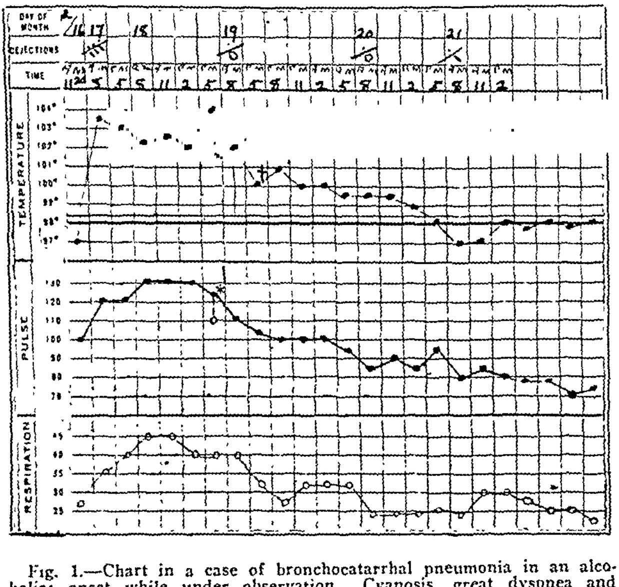

Fig. 1.—Chart in a case of bronchocatarrhal pneumonia in an alcoholic; onset while under observation. Cyanosis, great dyspnea and cough. Patient complained bitterly of the cold outdoor air. Showed immediate improvement and early lysis in the warm air of the ward. Complete recovery. *Sponge. †Axilla.

## THE DIAGNOSIS

It will be important at the start to make clear the features which have guided us in the determination of the type of pneumonia in our own cases. In bronchocatarrhal pneumonia we have regarded as first and most important the previous and present state of the patient, usually one of distinct asthenia, often with cardiac dilatation, always with a definite initial bronchitis. Not infrequently is the pneumonic lesion simply an extension process in the course of a bronchiolitis forming part of such a primary condition as influenza, measles, tuberculosis, typhoid fever, food toxemia or small-pox. The heart-muscle in these cases is practically always in distress. Here and there in favorite areas over the lung may be found small foci, exhibiting crackling (subcrepitant) râles, tubular breath-sounds and an impaired percussion note. The most frequent of these chosen sites is perhaps the anterior axillary line on the right, often the left side. Next and most common are the subscapular areas; and last of all, either the pulmonary bases or the apices. Often the process is central, and the physical signs are obscure. Not infrequently, on the other hand, especially if the case is seen late, an entire lung will show massive consolidation from fusion of many peribronchiolar foci. Tubular breathing may be intense and audible over this entire area.

In addition the temperature almost invariably runs an irregular, usually low-grade, sometimes altogether subnormal course. The pulse-rate is high and also characteristically irregular; the impulse is small and mean. The respiratory curve is irregular, but follows no rule. It tends to be low rather than high in rate. The fall of all three, temperature, pulse and respiratory rates, is usually by lysis. Occasionally the pneumonic process will resolve in a day or two and end by crisis. The necropsy, if one is reached, will not always show macroscopically the typical peribronchiolar foci of consolidation, provided these have entered on a stage of extensive coalescence. The microscope will, however, at once betray the inflammatory involvement and thickening of the bronchiolar walls, the minimal quantity of fibrin and the great proportion of epithelial material in both the bronchiolar and vesicular exudate. True fibrinous (croupous) pneumonia needs hardly any description, as it constitutes the old book type of the disease. Only its increasing rarity gives it a special interest. The patient is, as a rule, of a very different type from that just described. He or she is usually of a more or less robust build and of good previous health. Often he has experienced a better physical condition, just prior to the attack, than for a long period. The onset is sudden, is often attended by vomiting, the temperature is high, and remains so fairly constantly throughout the disease. The course is well defined, and usually ends by crisis in seven or nine days. As a rule, an entire lobe is involved, running through the stages of congestion, red hepatization, gray hepatization and resolution, with characteristic physical signs. The right lower lobe is most often involved, not seldom the left lower lobe, and less often the apices. If the case comes to necropsy there will be seen the typical lobar involvement in the stage of either red or gray hepatization. Fibrin plugs may stand out from the alveolar spaces in characteristic fashion. The microscopic examination of a section of lung-tissue will show an entire lack of a bronchiolar or peribronchiolar origin of the disease, and only a minimal proportion of epithelial elements will be present in the exudate, while in their place everywhere are noted fibrin and even organized tissue in the large and small air-spaces.

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* Read before the College of Physicians of Philadelphia, March 4, 1914.

[1] Willson, Robert N.: The Treatment of the Pneumonias, The Journal A. M. A., Jan. 24, 1914, p. 257.

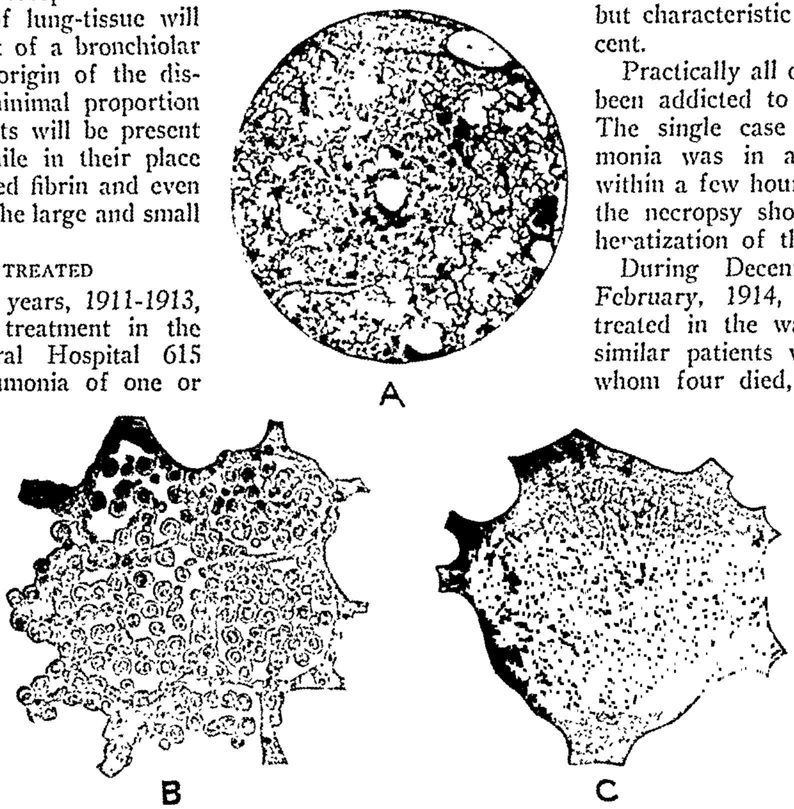

Fig. 2 (reproduced from Delafield).—*A*, An area of peribronchiolar pneumonia. Note the thickened bronchial wall. *B*, The intravesicular exudate in the bronchocatarrhal pneumonia of a child; largely epithelial, little if any fibrin present. *C*, The exudate of acute fibrinous pneumonia showing the fibrin strands, also many pneumococci.

### PATIENTS TREATED

During the three years, 1911-1913, there came under treatment in the Philadelphia General Hospital 615 patients[2] with pneumonia of one or the other type. These patients were distributed throughout the various medical services, and experienced varying forms of routine medicinal treatment. Practically every patient was treated outdoors, in the cold, whether the patient's temperature was febrile or subnormal throughout, whether or not the patient was cyanotic and in evident respiratory and cardiac distress, or whether the case was a distinctly sthenic one and the heart and vasomotor system were in satisfactory condition. Whether *post hoc* or *propter hoc* the mortality of this regimen totaled 61.5 per cent.

I have records of sixty-one patients treated on our own service during this period, practically all in the cold, open air, of which thirty-six died and twenty-five recovered, a mortality percentage again of 61.

During the months of January and February, 1914, there were treated on our own medical service nineteen patients with pneumonia, comprising, by an interesting coincidence, a total of nearly half as many patients as were handled by all the other services combined. Of the nineteen patients, the entire number, with one exception, ran a course typical of bronchocatarrhal pneumonia. All patients were treated in as fresh air as possible, on the warm general wards, since a special ward was unobtainable owing to general overcrowding of the institution. Sufficient bedclothing was supplied to the patient to enable him to conserve his heat and energy supply. Sixteen of the number recovered and three died. Two of the latter were nearly moribund on admission, and died shortly thereafter. Another was a negro with an extensive cardiac lesion, probably syphilitic in origin. This patient, a confirmed alcoholic, developed a large pleural effusion, which was removed by aspiration. When seemingly on the road to recovery he suddenly died, probably from pulmonary embolism. No necropsy could be obtained. The mortality in this small but characteristic series was 15.2 per cent.

Practically all of these patients had been addicted to the use of alcohol. The single case of fibrinous pneumonia was in a patient who died within a few hours of admission, and the necropsy showed extensive gray hepatization of the right upper lobe.

During December, January and February, 1914, our single service treated in the warm air twenty-five similar patients with pneumonia, of whom four died, giving a mortality of 16 per cent.

### CONCLUSIONS

It would seem as though one were compelled for sheer conscience' sake to examine both his own experience and that of others as to our warrant for believing that the preponderating type of pneumonia, both in the Philadelphia Hospital and out of it, is one originating in a bronchiolar and then a peribronchiolar process. This is important from the point of view of treatment and prognosis. I personally doubt whether there ever has been or ever will be seen a truly sthenic, vitally vigorous sufferer from bronchocatarrhal pneumonia. The very origin of the disease presupposes a bronchitis, in a patient with a lowered vitality. It seems therefore obligatory that we face and answer the question, "Have we really been killing many of our bronchocatarrhal pneumonia patients by treating them as though they were of a sthenic, febrile type?" And again, with all the effectual modern appliances at our command for the supply of warm, clean, air, with the opportunity of washing and rewashing and then resupplying an already used and heated air that has actually been proved cleaner and richer in oxygen for the heart and lungs of the patient than an unwashed outside air — is it not our duty, I ask, to lay hold on these appliances and conveniences and employ them, not only for the benefit of schoolchildren and theatergoers, but with a view to saving the lives of the sick, and especially of sufferers from the type of toxemia which we call bronchocatarrhal pneumonia?

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[2] In previously published figures the nineteen patients discharged in December, 1913, were not included.

We stand aghast at such mortality percentages as 61.5 and 61, even in a pneumonia community largely drawn from alcoholic subjects. What then is possible in the premises and what do we aim to accomplish?

I reply, first, that we should insist on a clear-cut discrimination between the two clinical types of pneumonia. Let us forget a little while even the name *pneumococcus* and the many other causative germs, active singly or in combination in both types of pneumonia, and let us remember the physical principles on which the human vital forces are stored and expended. Let us at least keep those patients indoors who are not vitally able to establish a temperature reaction or a considerable leukocytosis as indications of their attempt to outride the storm that has beset them. Let us wash and warm, and rewash their breathing air a sufficient number of times to render it cleaner and fresher than outdoor air. If modern appliances are unattainable through either a short-sighted or misguided economy on the part of those who furnish the funds that equip such a great municipal life conserver or Juggernaut as the Philadelphia General Hospital — and it can be made to fill either rôle — if the necessary appliances are still unattainable, I repeat, then let us hold our asthenic pneumonia patients on the general medical wards, and watch the percentage of recoveries rise and the mortality fall, as indicated in the small but suggestive 1914 series to which I have made passing reference. Let us send outdoors only such febrile pneumonics as crave the cold, and obtain a stimulus and a relief in and from it; and let us send even these back into the warmth, when the crisis occurs, or when for any reason they are distressed by the low temperature and appear pinched and blue from undue exposure to cold.

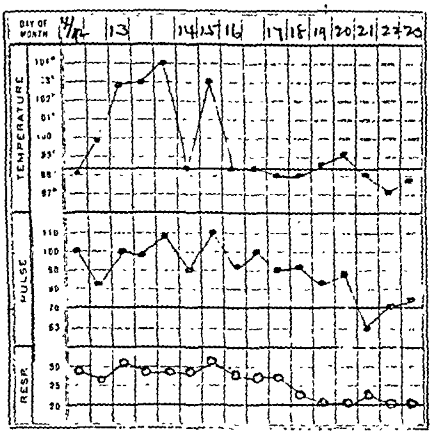

Fig. 3.—Chart in a case of bronchocatarrhal pneumonia in an alcoholic, who suffered and experienced an exaggeration of all symptoms in the cold air, and a prompt betterment when returned to the warm air, an early crisis, and recovery.

Under the new regimen we have ceased expecting death as the likely outcome of pneumonia of either type, even in the alcoholic. On the contrary, we feel a grave sense of responsibility and disappointment if such a case does not end in recovery.

1827 Spruce Street.

# THE ETIOLOGY OF TYPHUS FEVER (AND OF BRILL'S DISEASE). PRELIMINARY COMMUNICATION *

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NEW YORK

Basing my opinion on some theoretical considerations and on previous investigations, I considered it advisable to search for an anaerobic organism as the etiologic factor in the acute infectious disease of unknown origin which Brill differentiated from typhoid fever. By the use of anaerobic methods in six cases of Brill's disease, I obtained the same organism in five; the case in which the organism was not obtained was investigated only after the crisis. Inasmuch as studies made during the past few years have shown that Brill's disease is probably a mild form of typhus fever, I decided to apply the same methods to the study of the latter. Through the kindness of Dr. Joseph O'Connell, health officer of the port of New York, to whom I am deeply indebted, I was enabled to study six cases of typhus fever at the height of the disease, and from all of these I recovered an organism that appears to be identical with that isolated from the cases of Brill's disease. A large number of control cases was studied and the organism was absent from each.

The organism is a small, Gram-positive, pleomorphic bacillus, from 0.9 to 1.93 microns in length, the breadth being from one-fifth to three-fifths of the length. It is not acid-fast, has no capsule, and polar bodies can be demonstrated with appropriate methods. The organism when first isolated grows only anaerobically, but after a time it can be grown aerobically.

Complement-fixation tests were made by Dr. P. K. Olitsky and myself, using the serum of eight cases of typhus fever and antigens made up from organisms obtained both from cases of Brill's disease and typhus fever. Complement-fixation reactions were negative during the course of the disease, but at or after the crisis, fixation was found to be present in varying degrees in six out of eight cases. The antigen made from the bacillus obtained from the cases of Brill's disease binds the complement in the same manner as the antigen made from the bacillus isolated from the cases of typhus fever. Complement-fixation tests were made in thirty-six control cases with absolutely negative results.

Intraperitoneal inoculation of a pure culture of the organism into guinea-pigs produced a rise of temperature in from twenty-four to forty-eight hours, the temperature remaining high for four or five days, and then dropping by crisis. This corresponds to the reaction seen in guinea-pigs after inoculation with defibrinated blood from typhus fever patients, except that the incubation period is shorter. Serum from a convalescing typhus patient was proved to have bactericidal properties against the organism obtained from Brill's disease and typhus fever.

In a later communication it is proposed to consider the cultural characteristics of the organism, its agglutination reactions, the further results of animal experiments and cross immunity tests. At the same time the results of studies forming a basis for a possible vaccine prophylaxis, and comparative studies of other organisms described by various authors as being found in typhus fever, will be reported.

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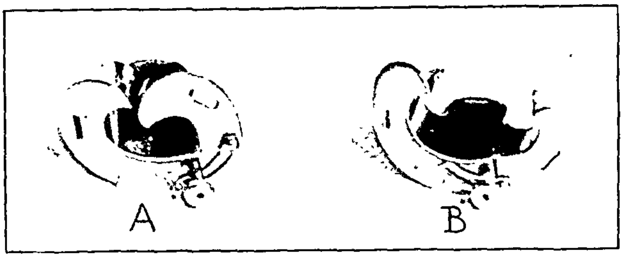
* From the Pathological Laboratory, Mt. Sinai Hospital.

# New Instruments and Suggestions

## MODIFICATION OF THE BROPHY MOUTH-GAG

R. E. Farr, M.D., Minneapolis

Having had some difficulty in introducing the Brophy mouth-gag, I have had the hinge attachment made, as illustrated. It will be noted that the modified instrument is adjustable. When it is closed, as at *A* in the illustration, it is much more easily introduced into the patient's mouth, and it may be opened to the ordinary width, or even much wider, as illustrated at *B*.



Modified Brophy mouth-gag; *A*, closed; *B*, opened widely.

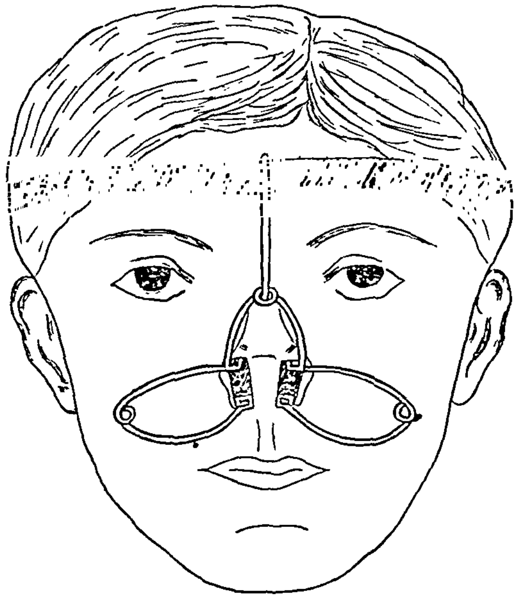
Another advantage is that two of these modified instruments will answer the requirements, whereas with the original instrument, a set of four was necessary.

Suite 301, Reid Corner.

## A NEW, DOUBLE, SELF-RETAINING NASAL SPECULUM

Max Unger, M.D., New York

The speculum which I have devised fulfils all the requirements of the ideal speculum in being small, simple, and complete, in dilating both nostrils at the same time, in staying in place, and in not interfering with the operator. So great an aid is it to the surgeon that the time of a submucous resection operation is shortened at least one-quarter.



Nasal speculum.

My speculum is made entirely of spring wire and consists of two pairs of fenestrated blades, one pair for each nostril. Each blade is about ¼ by ½ inch in size. The free border is slightly wider than the attached. The outer ends of the blades are fastened to the ends of a wire coil. The wires between the blades and the coils are bent back almost to a right angle, to approximate the cheek. The upper blades are also fastened to the lengthened ends of another coiled spring, which rises straight up in front of the nose for about 1½ inches. To this coil is fastened a small hook, the loose end of which passes over a tape across the forehead. The side coils dilate the nostrils anteroposteriorly, while the upper coil dilates them laterally. The hook serves to tilt the end of the nose up and to steady the instrument. The whole speculum is about 3 inches wide and about 2½ inches high.

1045 Fox Street.

## ILLUMINATION OF THE DEEPER CAVITIES

C. E. Tennant, M.D., Denver

There is need for better illumination of the deeper cavities and recesses of the body during examination and operation. Various devices have been used from time to time, some of which have proved unpractical because of the small area exposed at one time, others because of connecting wires and uncertain strength of current delivered to the lamp.

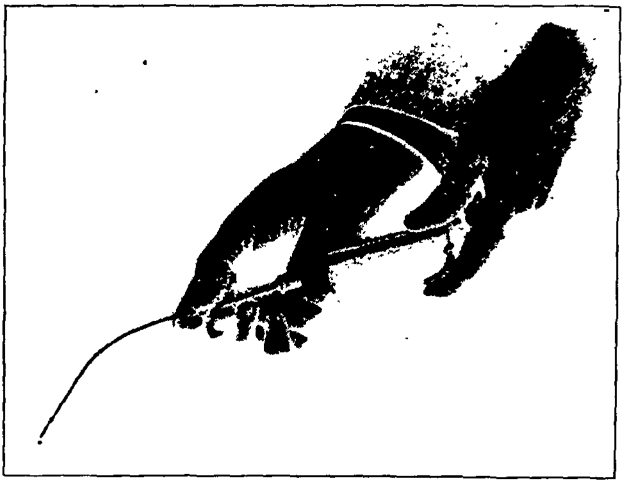


Fig. 1.—Device for illuminating the deeper cavities.

For several years past I have been utilizing the cystoscope for study of the thoracic cavity in connection with my method of operation and treatment of empyema. The results thus far have been quite satisfactory in locating pus pockets and fibrous bands, which, unless destroyed, prevent full expansion of the lung and obliteration of the pyogenic space.

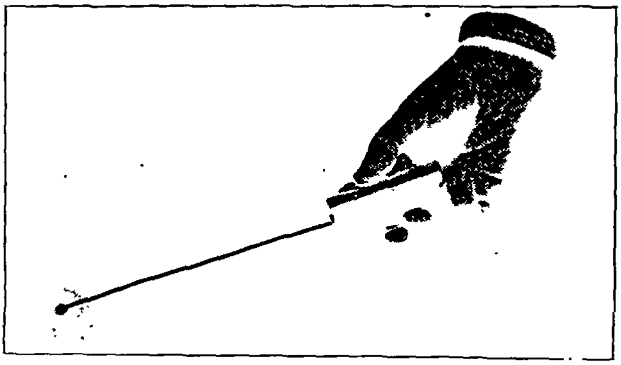


Fig. 2.—The same, with lamp secured into end of tube.

Recently while performing the suprapubic cystotomy with retractors and a well-exposed bladder interior, the need for better light prompted me to devise a method of illumination which has since proved very satisfactory.

As shown by the accompanying illustrations, this device consists of a 7-inch soft annealed tube extension, the base of which is seated against the battery by screwing it into the regular lamp socket of the battery case. A high candle-power miniature tungsten lamp is secured into the end of the soft extension tube. Its cost is trifling, and as the shaft is readily bent in any desired position, its general utility must be apparent. Both the shaft and the lamp may be sterilized in solutions, or the lamp may be so treated and the shaft boiled. The metal case which covers the storage battery or dry cell is covered with sterile gauze, or a sterile muslin sheath, made to fit, is drawn over the case before it is placed with the other instruments. This affords perfect and safe control of the instrument.

The device so arranged gives excellent illumination in all cases in which deep ocular inspection is desired during the course of the operation. This lamp is also of value in the transillumination of the stomach, gall-bladder, biliary ducts, duodenum and other hollow viscera. The instrument has been made for me by the Paul V. Muckle Instrument Company of Denver.

612 Empire Building.

## A PERMANENT PREPARATION OF UREASE, AND ITS USE FOR RAPID AND ACCURATE DETERMINATION OF UREA *

Donald D. Van Slyke and Glenn E. Cullen, New York

The procedure described below permits any one with rudimentary laboratory experience to complete within half an hour an accurate determination of the urea content of the urine, blood or spinal fluid. The apparatus required consists merely of test-tubes, burets and a suction-pump such as can be attached to any tap with fair water-pressure.

The methods for urea determination have until recently been of two classes, dependent respectively on either (1) the hypobromite reaction, or (2) the principle of transforming the urea into ammonia by heating to 150 C. (302 F.) in acid solution. The hypobromite methods are notoriously inaccurate. The heating methods, particularly that of S. R. Benedict, are, for urine at least, accurate, but not suited for use outside of a laboratory.

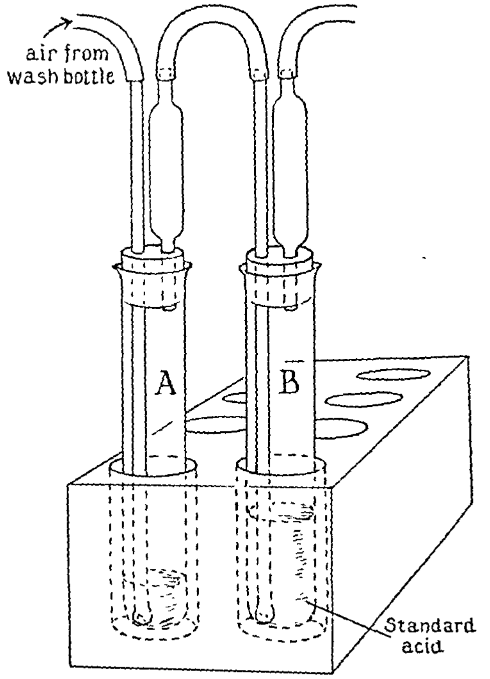
Marshall has recently introduced a third principle which offers an opportunity for obtaining results equal in accuracy to the best laboratory methods, with a technic almost as simple as that of the hypobromite procedure. Marshall utilized an enzyme, urease, discovered in 1909 by Takeuchi in the water extract of the soja or soy bean, which converts urea into ammonium carbonate. It acts at room temperature, forms ammonia from nothing except urea, and is not interfered with by glucose or anything else likely to be encountered in physiologic fluids. Marshall's extract has, however, two disadvantages compared with the chemical reagents available: it requires a number of hours to react quantitatively, and it loses its activity on standing.

These disadvantages have been overcome by the preparation of the enzyme in the form of a soluble and very active dry powder. Soja bean meal is extracted with 5 parts of water and the extract poured into 10 volumes of acetone. The precipitate containing the enzyme is dried, and obtained as a powder which maintains its activity indefinitely. The enzyme prepared in this form can be obtained from the Arlington Chemical Company, of Yonkers, N. Y.

*Properties of the Urease.*—The enzyme preparation dissolves readily in water, forming an opalescent solution. Under given conditions, a given amount of it will decompose a definite amount of urea per minute, and no more, regardless of how much excess urea may be present. The preparation is most active at a temperature of approximately 55 C. (131 F.) and in a perfectly neutral solution. Between 10 and 50 C. (50 and 122 F.), increasing the temperature over any 10 degree interval doubles the rate at which the preparation acts. Heavy metals, or acid in a relatively slight concentration, destroy the activity. The urease is not quite so sensitive toward an alkaline reaction, but its activity is decreased by even weak bases. Ammonium carbonate depresses the activity to about one-eighth the optimum, so that the action of the enzyme is self-retarding. The retarding effect of the ammonium carbonate formed can be neutralized and conditions for optimum activity obtained by the addition of potassium dihydrogen phosphate (potassium acid phosphate, $KH_2PO_4$), and dipotassium hydrogen phosphate (neutral potassium phosphate, $K_2HPO_4$), in equimolecular proportions. This phosphate mixture also acts as a stabilizer to solutions of enzyme. While the latter ordinarily begin to lose strength rapidly after from one to five days, a solution containing 10 per cent. of the enzyme preparation in 0.2 molecular $KH_2PO_4 = K_2HPO_4$ lost only 3 per cent. of its activity in three weeks when kept under toluene at from 25 to 30 C. (77 to 86 F.) in a place exposed daily to direct sunlight.

*Preparation of Enzyme Solution.*—Two gm. of the enzyme preparation, 0.6 gm. of dipotassium hydrogen phosphate, and 0.4 gm. of potassium dihydrogen phosphate are stirred up with a rod in 10 c.c. of water. The enzyme preparation dissolves in about a minute, forming an opalescent solution. A few floccules of insoluble matter may remain, but the active enzyme all goes into solution at once. The urease can be obtained from the manufacturers in 1-gm. portions already mixed with the proper amounts of phosphate, so that it is merely necessary to dissolve the mixture in 10 c.c. of water. The acid phosphate serves a double purpose: it accelerates the enzyme action, and renders the enzyme solution more stable. If the latter is covered with toluene it will ordinarily hold its activity for a fortnight, but it is safer to use fresh solutions.

*Analysis of Human Urine.*—The procedure consists in treating the urine sample with urease, aerating the ammonia formed into fiftieth-normal acid, and titrating back the excess acid.



Apparatus for determining the urea content by means of urease.

The details are carried out as follows:

1. Dilute 5 c.c. urine to 50 c.c.
2. Measure into Tube A 5 c.c. diluted urine, 1 c.c. enzyme solution, 1 drop caprylic alcohol.
3. Close A with stopper shown in figure, and let stand fifteen minutes for enzyme to act.
4. Measure into tube B 25 c.c. fiftieth normal hydrochloric acid or sulphuric acid, 1 drop 1 per cent. sodium alizarinate indicator, 1 drop caprylic alcohol.

Connect A and B as shown in figure.

5. At the end of fifteen minutes pass the air-current as indicated for one-half minute.
6. Then open A and pour in 4 to 5 gm. of dry potassium carbonate measured from a spoon.
7. Close A at once and aerate again till all ammonia is driven over into the acid in B.
8. Titrate excess acid in B with fiftieth-normal sodium hydroxid.

The caprylic alcohol (Kahlbaum's "Octylalkohol, Sekundär I") serves to prevent foaming during the aeration. The purpose of the preliminary half-minute aeration (paragraph 5 above) is to drive over into the acid in B any ammonia that may have escaped from the urine into the air space in A. The time required for the final aeration depends on the rate at which the air-current is passed through the solutions, and must be determined by trial for the particular pump or pressure system that is utilized. With a central vacuum, pressure, or an efficient pump which will give as rapid a current as the apparatus will stand, it is possible to drive off all the ammonia in five minutes, while with a slow pump half an hour may be necessary. The number of cubic centimeters of fiftieth-normal acid neutralized by the ammonia (i.e. 25 minus the c.c. of alkali used in Process 8) is multiplied by the factor 0.056 to give the number of grams of urea plus ammonia nitrogen per hundred cubic centimeters of urine. The ammonia alone may be determined at the same time with the ammonia plus urea, using the same technic, except that 5 c.c. of *undiluted* urine, no urease, and the factor 0.0056 are used for determination of the ammonia nitrogen alone. The ammonia tubes are connected in series with those for the urea determination, using the same air current for all. One can run as many as eight pairs of tubes in series on one current, taking care only to disconnect the series in the middle, to prevent back suction, before the pump is disconnected.

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* From the Laboratories of the Rockefeller Institute for Medical Research.

*Determination of Urea in Blood, Spinal Fluid, etc.*—The urease is particularly valuable in permitting a simple and accurate determination of urea in the blood, because its action is so specific that it attacks none of the other constituents, and the blood has to undergo no preliminary treatment for removal of the latter. Three c.c. of fresh blood or fluid, measured wth an accurate pipet, are run into a 100-c.c. test-tube containing 1 c.c. of 3 per cent. potassium citrate, to prevent clotting; 0.5 c.c. of the urease solution and 2 or 3 drops of caprylic alcohol are added. After ten minutes 5 c.c. of saturated potassium carbonate solution are added, the ammonia is driven by aeration into 15 c.c. of hundredth-normal acid, and the excess acid is titrated back with hundredth-normal sodium hydroxid. Each cubic centimeter of hundredth-normal acid neutralized indicates 0.01 per cent. (grams per hundred cubic centimeters) of urea in the blood, or 0.00467 per cent. of urea nitrogen. In case the blood should be one of the rare samples containing over 0.15 per cent. of urea, all the acid will be neutralized, and it will be necessary to repeat the determination, using a sample of only 1 c.c. Fresh blood contains so little ammonia that it can be disregarded.

*Technic of Aeration.*—The technic is essentially that of Folin, with some minor alterations to adapt it to the somewhat changed conditions. The tubes do not have to stand heat, and consequently can be made of very heavy and durable glass. A convenient holder (shown in the illustration) for them is easily made from a block of wood 9 by 5 by 4 inches, by drilling in it eight holes, each 1⅛ inches in diameter and 3 inches deep.

To prevent foaming, caprylic alcohol is by far the most efficient agent with which we are acquainted. With it one has no trouble at all, even in very rapid aeration of blood. In its absence one can use amyl alcohol or kerosene, although these do not guarantee the same immunity from annoyance and lost analyses. In view of the small amounts of caprylic alcohol required (from 2 to 5 drops for an analysis) its use is not expensive.

The inlet tube for air should always reach to the bottom of the solution.

The most convenient rubber tubing for the connections is the thick-walled, soft stethoscope tubing.

The apparatus, arranged as shown in the accompanying illustration, is so simple that it can be made in a laboratory, but can be obtained, with the block holder shown, suction pump, and a set of especially heavy test-tubes, from Emil Greiner & Co., 45 Cliff Street, New York.

In connection with the subject the following references will prove of interest:

Takeuchi: *Jour. Coll. Agric.*, Tokyo, 1909, Part 1.
Armstrong: *Proc. Roy. Soc.*, 1912, lxxxv, Series B, p. 109; lxxxvi, 328, 561, 1913.
Marshall: *Jour. Biol. Chem.*, 1913, xiv, 283; 1913, xv, 487.
Folin: *Jour. Biol. Chem.*, 1912, xi, 493.
Van Slyke and Cullen: Preliminary reports, *Proc. Soc. Exper. Biol. and Med.*, Dec. 17, 1913; *Proc. Soc. Biol. Chem.*, Dec. 29, 1913.

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**Distribution of Sexes in Manila.**—In Manila males greatly exceed females in number. At present there are 149,397 males as against 131,608 four years ago, and 117,546 females as against 102,801 four years ago, that is, about 32,000 more males than females. There are only 3,626 widowers in Manila, while the number of widows is 10,961. Prosperous conditions offering good employment account for the movement to the metropolis of the islands.

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# *New and Nonofficial Remedies*

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

**EREPTON.**—Erepton is a product prepared by the digestion of meat and consisting largely of the amino-acids thus produced. One hundred Gm. of erepton contains about 12 Gm. of nitrogen (the exact nitrogen content is stated on each package) in a form which does not give the biuret reaction.

*Actions and Uses.*—Erepton is said to be capable of supplying the nitrogen requirements of the animal organism. It is claimed to be non-toxic and non-irritating and to be satisfactorily absorbed when introduced into the rectum. Erepton is said to be useful in cases in which it is necessary to substitute a perfectly digested food for the product of natural digestion in cases of gastric or intestinal indigestion and for the purposes of rectal alimentation.

*Dosage.*—Erepton is usually administered as a nutrient enema in a solution having the temperature of the body. It may be used from three to four times daily. The following prescription is best adapted for the purpose:

| | |
|---|---|
| Erepton | 20.0 Gm. (⅔ ounce ) |
| Pure maltose | 20.0 Gm. (⅔ ounce ) |
| Water | 200.0 Gm. ( 7 ounces) |

Should it appear desirable, 10 Gm. (150 grains) of fat may be added to the preceding in the form of olive-oil or butter. Erepton may be given in porridges, vegetables or soups.

Manufactured by Farbwerke, vorm. Meister, Lucius and Bruening, Hoechst a. M., Germany (Farbwerke-Hoechst Co., New York). No U. S. patent. U. S. trademark No. 88,403.

Erepton is prepared by the successive action of pepsin-hydrochloric acid, trypsin and erepsin on meat freed from fat and tendon; the end-product is then desiccated.

Erepton is a brownish, hygroscopic powder, easily soluble in water and having an odor and taste suggestive of meat extract.

**SEROBACTERINS.**—(See THE JOURNAL, Feb. 7, 1914, p. 457.) The Council has at present no means of determining the identity and purity of serobacterins; they must be used on the guarantee of the manufacturer alone and they must be used, therefore, with due caution.

H. K. Mulford Co., Philadelphia.

*Acne Serobacterin, Mulford (Sensitized Acne Vaccine, Polyvalent).*—Marketed in packages of four syringes, graduated as follows: Syringe A, 100 million killed sensitized acne bacilli, Syringe B, 200 million killed sensitized acne bacilli; Syringe C, 400 million killed sensitized acne bacilli; Syringe D, 800 million killed sensitized acne bacilli.

*Coli Serobacterin, Mulford (Sensitized Coli Vaccine).*—Each package contains four syringes of Coli Serobacterin graduated as follows: Syringe A, 250 million killed sensitized *Bacillus coli;* Syringe B, 500 million killed sensitized *Bacillus coli;* Syringe C, 1,000 million killed sensitized *Bacillus coli;* Syringe D, 2,000 million killed sensitized *Bacillus coli.*

*Neisser Serobacterin, Mulford (Sensitized Gonococcic Vaccine).*—Each package contains four syringes of Neisser serobacterin graduated as follows: Syringe A, 250 million killed sensitized gonococci; Syringe B, 500 million killed sensitized gonococci; Syringe C, 1,000 million killed sensitized gonococci; Syringe D, 2,000 million killed sensitized gonococci.

*Pneumo Serobacterin, Mulford (Sensitized Pneumococcic Vaccine).*—Each package contains four syringes of Pneumo Serobacterin graduated as follows: Syringe A, 250 million killed sensitized pneumococci; Syringe B, 500 million killed sensitized pneumococci; Syringe C, 1,000 million killed sensitized pneumococci; Syringe D, 2,000 million killed sensitized pneumococci.

*Staphylo Acne Serobacterin, Mulford (Sensitized Staphylo Acne Vaccine).*—Each package contains four syringes of Staphylo Acne Serobacterin graduated as follows: Syringe A, 500 million killed sensitized staphylococci, 100 million killed sensitized acne bacilli; Syringe B, 1,000 million killed sensitized staphylococci, 200 million killed sensitized acne bacilli; Syringe C, 2,000 million killed sensitized staphylococci, 400 million killed sensitized acne bacilli; Syringe D, 4,000 million killed sensitized staphylococci, 800 million killed sensitized acne bacilli.

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SATURDAY, MAY 16, 1914

## ALBUMINURIA FOLLOWING INGESTION OF PHENOLPHTHALEIN

Doubtless few drugs in the entire Pharmacopeia enjoy such wide-spread use as substances included in the cathartic group. The common laxatives are as familiar to the layman as they are to the physician, and are everywhere advertised and employed with characteristic "supreme indifference" to the possibility of harm, and for the most part in ignorance of the real action of the individual drug. If the layman elects to take his bodily welfare into his own hands he must be satisfied to bear the consequences that may follow from lack of expert knowledge; but the physician ought to appreciate the limitations of the procedures which he employs, the possible dangers which they may involve, and those idiosyncrasies of the individual which call for discrimination and judgment in therapeutic practice.

Scarcely more than a decade ago, quite by accident, the apparently harmless drug phenolphthalein came into use as a laxative, and in all parts of the world speedily found favor with patient and physician alike, even before the real pharmacology of the substance had been adequately worked out. Its use seemed to be attended with no noticeable irritation of the enteric tract. The early theory was that it acted as a cathartic, not by provoking peristalsis, but by exciting a hypersecretion of fluid in the intestine. Statements implying the non-toxicity of phenolphthalein and the absence of deleterious action therefrom on the kidneys are current. A recent report from the laboratories of bacteriology and physiologic chemistry at the Jefferson Medical College in Philadelphia[1] comes, therefore, as somewhat of a surprise. In twenty experiments, in each of which, before beginning the trials, the subject's urine showed no trace of albumin by delicate tests, a twenty-four-hour specimen, collected after the administration of phenolphthalein in a from 1-grain to 2-grain dose, gave positive tests for the protein in every case. The amount of albumin varied from a trace up to 0.25 per cent. by Esbach's quantitative method. The precipitate in many of the cases was tested and found to be insoluble in alcohol. Traces of phenolphthalein were demonstrated in the urine. The albuminuria lasted from one to three days.

In experiments on the lower animals — cats, in this instance—no demonstrable phenolphthalein or albumin appeared in the urine after the administration of large doses. The kidneys showed no pathologic changes on microscopic examination. Hydrick concludes from an examination of the feces as well as from the condition of the alimentary canal after ingestion of the drug, that because its alkali salt is an irritant, it produces purgation by (1) irritation of the intestinal mucous membrane by the unabsorbed portion, and (2) stimulation of the intestinal nerve-plexuses which regulate peristalsis by the absorbed portion of the drug. If the facts here recorded for man are substantiated by further investigation they cannot be neglected in any consideration of the choice of suitable laxatives to meet individual needs. A case of poisoning from taking 1 gm. (15 grains) of phenolphthalein has been reported.[2] It would be unjust, however, seriously to condemn a widely used and apparently satisfactory drug until the statistics leave no alternative.

## THE MEDICAL ASPECT OF CHILD LABOR

In his recent article on "The Underlying Factors in the Spread of Tuberculosis," Francine[3] emphasizes the social and economic conditions underlying this disease and refers to the recent studies of Baldwin which show that tuberculosis is the most common infection of childhood. The campaign against tuberculosis in children must be waged against any cause of a lowered resistance which may permit the latent disease to become active. That child labor, unless adequately safeguarded, may have this result is asserted by Ludwig Teleky[4] in an article on the choice of occupation for wage-earning children.

Since its foundation by the University of Vienna, Teleky has been docent of the chair of social medicine. As industrial hygiene is the most important branch of this subject, he early became interested in tuberculosis as an industrial disease, and logically was led to study the effects of different occupations on wage-earning children with a predisposition to this disease. He found that in Germany as well as in Austria there is an unduly high tuberculosis-rate among youthful wage-earners. Kayserling has shown that while in Berlin the tuberculosis death-rate for all the later years of life has fallen since 1900, no diminution has been found in the death-rate for children of wage-earning age. Von Pirquet attributes the rise in the tuberculosis morbidity-rate during the years between 15 and 20 to overstrain and undernutrition in apprenticeship life.

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[1] Hydrick, J. L.: Albuminuria Following Ingestion of Phenolphthalein, Proc. Am. Soc. Biol., Chem., Jour. Biol. Chem., 1914, xvii, p. xxxvi.

[2] See A Handbook of Useful Drugs, 1913, p. 104.

[3] Francine, Albert Philip: The Underlying Factors in the Spread of Tuberculosis, The Journal A. M. A., March 7, 1914, p. 767.

[4] Teleky, Ludwig: Fürsorge bei der Berufswahl mit Rücksicht auf die Tuberkulose, Wien. klin. Wchnschr., 1913, xxvi, 421.

At the beginning of his investigation Teleky found little literature concerning the effect of different occupations on the health of children, and he remarks with some bitterness that European physicians have paid far more attention to the effect on the health of children of overwork in school than to the effect of industrial work, a statement which sounds strange to American ears. Evidently European schoolchildren work much harder than American children. From the Vienna Sickness Insurance Bureau, however, Teleky was able to gather statistics which show clearly the increase of sickness among children who leave school for work. The increase of sickness during the first year of work is not great, but in the second and third years it is pronounced, and even the fourth year is higher than the first.

He then took up the question of control of the choice of occupation so that some regard might be given to the welfare of the child, and underdeveloped children, predisposed to tuberculosis, might be kept out of occupations in which too great demands were made on their strength. In Vienna medical control of such matters is easier than with us, because of the well-established system of apprenticeship. Most industries employ physicians, who examine applicants for apprenticeships and may reject the physically unfit. Theoretically, this is a good system, but Teleky has found it ineffective in practice. The physicians are almost obliged to accept or reject applicants according to the state of the labor market. Also, the best-paid industries get the strongest boys, while weaker boys must accept lower wages and poorer conditions or go into the unskilled occupations, which means that the children who most need it are not protected.

Realizing that the choice of occupation should be made during school life and with the advice of teacher and doctor, Teleky, with the cooperation of other physicians, opened a consultation clinic for schoolchildren and their parents, in which advice was given as to the occupation for which the child was fitted. After three and a half years' experience, in spite of every effort, including wide advertising in labor journals, he states that only three hundred boys have been brought to his clinic. This discouraging feature, however, may be explained by the still more discouraging fact of his inability to provide for those who did consult him. Here, as he says, practice and theory part company. What occupation should be advised for an underdeveloped boy plainly predisposed to tuberculosis? The medical books, of course, declare that such boys should be given no indoor occupation and no work which causes physical overstrain, or in which the posture is not frequently changed. After many years spent in visiting industrial establishments in Vienna, Teleky found only two such occupations available—ornamental (not market) gardening, and forestry. He also discovered that in these two fields of labor not enough positions existed in all Austria to give employment to the underdeveloped children found in a single one of the working-class quarters of Vienna.

Disease is produced in working children not only by improper conditions of labor—heat, dust, insufficient light, stagnant air—but also by the work itself—the physical overstrain placed on an underdeveloped organism which should have its energies conserved for growth. After studying the problem at first hand, and seeing all efforts to prevent the disastrous effect of labor on underdeveloped children fail, Teleky finds no remedy save the raising of the age-limit for employment. The age of 16, he thinks, is early enough for children to enter industrial work; and even at 16 the transition from school life to industrial life should not be too abrupt, lest the shock to the youthful organism be too great. He agrees with Kaup that for the youth under 18 the work-day should be limited to ten hours, including time for three meals, with each week at least three half holidays for study and sport, and each year a two weeks' vacation.

## HOOKWORM ANEMIA

Although the presence of one or both of two species of parasitic worms — the New World hookworm, *Necator americanus* or the Old World *Ankylostoma duodenale* — is universally accepted as the primary etiologic factor in the hookworm disease of man, one of the most conspicuous symptoms, namely, the hookworm anemia, is by no means satisfactorily determined. Opinion is still to a large extent empirical on this feature of ankylostomiasis. It was early assumed that the habits of the worms in biting and attaching themselves to the alimentary wall would lead to hemorrhages, and that the resulting loss of blood would account for the characteristic anemia. Examination of the small intestines in suitable cases has often revealed a diffuse catarrh of variable severity; there may be large spots of hemorrhagic infiltration each with a worm hanging to its center; hemorrhages may or may not be present. It does not follow, however, that the worms suck blood. Looss,[1] for example, insists that their natural food is the intestinal epithelium, and that although blood is not infrequently found in the intestine of the worms, the red corpuscles are not digested to any extent.

Undoubtedly, the parasites of ankylostomiasis injure in several ways. The considerations just advanced,

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1. Looss, A.: The Anatomy and Life History of *Agchylostoma duodenale*, Records of the Cairo School of Medicine, 1911, iv, 163.

along with others of a more general nature, have led to the promulgation of the toxin theory of the disease. Nicoll[2] has recently summarized the arguments with regard to the two principal theories. On the one hand, it has been believed that the worm itself secretes a toxic substance, the action of which gives rise to the anemia: on the other, the more recent idea is that the hypothetical toxin is produced by some extraneous organisms such as intestinal bacteria, the products from which find their way through the damaged mucosa. Numerous attempts have been made to isolate a hemolytic or otherwise harmful substance, with varying success.[3] The greatest objection to be raised against the theory of secondary microbic invasion is the rapidity with which the anemia disappears on expulsion of the worms. Perhaps we shall not take an extreme position if we tentatively conclude, in the light of the conflicting evidence now available,[4] that several factors such as toxins, intestinal lesions and hemorrhages, rather than a single condition, contribute to produce the clinical picture of the disease.

If the hookworm anemia were induced by a loss of blood associated solely with the injury to the alimentary wall, the anemia would evidently be of a secondary or hemorrhagic type. Boycott and Haldane[5] have contended that the blood-content differs from that in secondary anemias. Clinically, the leading feature of hookworm anemia in man is the chronic and progressive nature of the disease, although the progress in some cases may be very rapid. The usual description indicates that the symptoms are those of severe anemia, generally associated with some degree of gastro-enteritis. The individual symptoms which may occur, though numerous, are not specifically characteristic of hookworm anemia. In the pallor and edema, we are told, there is a greater resemblance to chlorosis than to pernicious anemia.

At the Lister Institute of Preventive Medicine in London, Dr. William Nicoll[2] has attempted to investigate, under careful experimental conditions, some of the alleged blood-changes in ankylostomiasis. The dog, which was used as the subject, harbors a hookworm *Ankylostoma caninum,* distinct from that of man. The hookworm anemia of dogs differs from the corresponding disease in man in two essential particulars, namely, that young animals are chiefly affected and that in them a fatal termination comes much more rapidly. Older dogs, although not altogether insusceptible, acquire only a moderate infection and, consequently, a minor degree of anemia. From this they gradually recover, even in spite of repeated and continued attempts at reinfection. The anemia observed in young dogs was characterized by great loss of weight, emaciation, prostration and intestinal hemorrhage, but in no case was epistaxis observed. The blood volume of dogs suffering from the minor degree of hookworm anemia is not materially altered, except, perhaps, it is somewhat diminished. The oxygen capacity of the blood per unit of body-weight is also, on the average, somewhat decreased. Infection is generally accompanied by distinct though not profuse hemorrhage, which is most marked in the early stages, but tends to disappear. Eosinophilia was not a constant sign either of infection or of disease. Evidence of blood regeneration was furnished by the appearance of large numbers of erythroblasts (normoblasts) which increased with the progress of the disease.

Cats are much less easily infected than dogs, and monkeys as well as human beings were found to be insusceptible to the hookworm peculiar to the dog. The experiments thus disprove the theory that the dog, either by harboring the human parasite or by the dissemination of its own, may be the carrier of hookworm infection to man.

## OYSTERS AND TYPHOID FEVER

There are seasons of the year when the instances of infection with the organism of typhoid fever can usually be traced with considerable ease to their probable source. Epidemiologic study long ago demonstrated that the greater outbreaks are usually due to infected water, milk or other foods, and it came to be seen that the smaller groups and isolated cases could best be explained by contact infection. The carrier has been shown to be the link between hitherto unconnected cases. For many years no form of air infection (except dust) has been said to be a cause of typhoid, and the reports of outbreaks of dust-borne typhoid fever in the Spanish and Boer wars and in India are based on the flimsiest evidence.[1]

We have not forgotten the ubiquitous house-fly as a frequent carrier of disease. In many of our states, however, insects of this type are excluded as effective agents of infection because of the climate during the colder months of the year, so that we cannot fall back on the convenient hypothesis of "transmission by flies" to explain the incidence of typhoid fever. Ever since Conn's report indicating the occurrence of cases of typhoid fever in epidemic form as the result of the use of oysters contaminated with sewage,[2] there has been a growing tendency to attribute the origin of much of the winter typhoid fever in certain districts to sewage-polluted bivalves.

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[2] Nicoll, W.: The Blood Volume in Ankylostomiasis, with Some Biological Notes Relating to the Disease, Jour. Hyg., 1914, xiii, 369.

[3] Loeb, L., and Smith, A. J.: The Presence of a Substance Inhibiting the Coagulation of the Blood in Ankylostoma, Proc. Path. Soc., Philadelphia, 1904, vii, 173; Ueber eine die blutgerinnungshemmende Substanz in Ankylostoma caninum, Centralbl. f. Bakteriol., Orig., 1906, xl, 738. Loeb, L.: Ein weiterer Versuch über die blutgerinnungshemmende Substanz in Ankylostoma caninum, ibid., 1906, xl, 740. Liefmann, H.: Beitrag zum Studium der Ankylostomiasis; über den Infectionsmodus und die vermutliche Giftwirkung der Würmer, Ztschr. f. Hyg. u. Infectionskrankh., 1905, l, 359. Preti, L.: Haemolytische Wirkung von Ankylostoma Duodenale, München. med. Wchnschr., 1908, lv, 436. Noe, F.: Etude sur l'ankylostomiase, etc., en Cochinchine, Ann. de l'Inst. Pasteur, 1908, xxii, 896. Whipple, G. H.: Ankylostomiasis, Bull. Johns Hopkins Hosp., 1908, xx, 152; The Presence of a Weak Haemolysin in the Hook-Worm and Its Relation to the Anaemia of Uncinariasis, Jour. Exper. Med., 1909, xi, 331.

[4] In addition to the references already given, consult Weinberg, M., and Leger, M.: Recherches cliniques et expérimentelles sur l'ankylostomiase, Bull. Soc. Path. exot., 1908, i, 229. Siccardi, P. D.: Pathogénic de l'anémie ankylostomienne Arch. de Parasitol., 1910, xiii, 555. Castanelli, A:. Ankylostomiasis Fever, Jour. Trop. Med. and Hyg., 1910, xiii, 255.

[5] Boycott, A. E., and Haldane, J. S.: An Outbreak of Ankylostomiasis in England, Jour. Hyg., 1903, iii, 95.

[1] Chapin, C. V.: The Air as a Vehicle of Infection, The Journal A. M. A., Feb. 7, 1914, p. 423.

It is time to ascertain whether this attitude toward the oyster is justified by the facts. Oysters are a highly prized article of diet wherever they are obtainable. Despite the increasing enforcement of rigid regulations concerning the vending of oysters that are free from pollution according to the standards of such representative bodies as the Bureau of Chemistry of the United States Department of Agriculture and the Rhode Island Shell-Fish Commission, the prejudice against this food-product has, justly or unjustly, increased in many quarters. To consider only the alleged responsibility of the oyster in the causation of winter typhoid, we may ask what its biologic habits are at this season. Gorham[3] has shown that during cold weather oysters rest or hibernate; the ciliary movement ceases and feeding does not occur, and the oysters become practically free from sewage organisms, even when lying on sewage-polluted beds.

As such facts seem to throw some doubt on the wisdom of attributing winter typhoid to the oyster, Joseph[4] has made a bacteriologic study of the oysters sold in Baltimore. The aim of this investigation, conducted in the Laboratory of Hygiene and Bacteriology at the Johns Hopkins University, was to ascertain whether the oysters sold in one of the most prominent markets for these products in the United States contain organisms derived from the intestinal tract, and whether their content in bacteria varies with the seasons of the year.

Obviously, the presence of micro-organisms characteristic of water was to be expected; and these have no significance in this connection. The bacterial findings indicated that the oysters sold in Baltimore are in general free from sewage contamination. Those few lots which would be condemned by the most rigid standards were obtained at times of the year when the weather was quite warm — a fact of no little significance in view of the tendency to prolong the oyster-eating season beyond the limits of the colder months. One of the most striking points brought out was the distinct change in the character of the oysters, according to the time of the year. Thus in the early fall the scores were high, in the cold weather of the midwinter low, and again high in the spring. There was a distinct correlation between the number of bacteria in each oyster and the number of gas-producing species. This seems to indicate that the increase of bacteria which the various oysters show is in large part due to a multiplication of the intestinal organisms and not to an increase of the ordinary water species. The specific types isolated in the unsatisfactory lots include *Bacillus coli* and *B. cloacae*, which are surely indicative of sewage pollution, *B. alkaligenes* and certain rarer intestinal species: *B. oxygenes*, *B. oxyphilus*, *B. chymogenes* and *B. chylogenes*. On no occasion were organisms of the type of *Bacillus typhosus* or *Bacillus paratyphosus* encountered.

## Current Comment

### TYPHOID PREVENTION AMONG SEAMEN

In an open letter, Surgeon-General Rupert Blue calls attention[1] to the fact that during the fiscal year ending June 30, 1913, 392 cases of typhoid fever among seamen employed aboard United States merchant vessels were admitted to the United States marine hospitals. As in addition to this number many other patients are known to have been treated at various other hospitals and at their homes, it is evident that the incidence of typhoid fever among the personnel of our merchant marine is high. This might be expected in view of their exposure and rather irregular lives. The occurrence of the disease among these men, however, is a special danger and of great importance not only for the seamen and shipping interests, but also for the public at large. The surgeon-general calculates that, taking two and a half months as a fairly low average of the actual loss of working time during typhoid fever, and a dollar and a half as the average daily wage of the employee, the aggregate loss is some eighty years in actual working time and $44,000 in wages. "In terms of cold dollars and cents alone this is a rather heavy price to pay for an entirely preventable disease." Furthermore, each patient may become a focus for the spread of the disease or a source of no little subsequent danger even after recovery as a possible "carrier." "Carriers" on board vessels are particularly dangerous as they are an ever-present menace to fellow shipmates and to passengers. In shifting from port to port the seaman "carrier" may become a traveling focus of infection and an active agent in the spread of the disease. The War and Navy departments have very largely reduced—indeed, almost obliterated—the incidence of typhoid fever by the introduction of preventive inoculations. The French in Algiers and Morocco have found typhoid preventive inoculations of such great value that in these countries troops which formerly suffered severely from the ravages of the disease are now comparatively free from it. Indeed, from a positive scourge the affection has become almost a negligible incident of military life. Similar favorable experiences with preventive inoculations are reported from other countries. So far, preventive inoculations for typhoid have been used only in military and naval circles and in hospital work among physicians and nurses. The results have been so favorable that it would seem to be time to secure the introduction of the practice of typhoid immunization to the public. Nowhere does a better opportunity exist to test it than among the United States seamen of the merchant service. Navigation on the lakes is now just about to open and this is the best possible time to show how much may be accomplished in preventing disorganization of traffic and financial loss from the occasional epidemics of typhoid fever that have occurred in spite of precautions. This can surely and easily be done by the institution of typhoid inoculation. Surgeon-General Blue concludes his open letter by saying that "the United States Public Health Service is ready and willing to render every assistance and advice, and at all relief stations throughout the country service officers are instructed to administer the typhoid prophylactic to all sailors applying for same."

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[2] Conn, H. W.: Med. Rec., 1894, xlvi, 471.

[3] Gorham, F. P.: Am. Jour. Pub. Health, 1912, ii, 24.

[4] Joseph, M.: Bacteriological Findings in Baltimore Oysters, Johns Hopkins Hosp. Bull., 1914, xxv, 128.

[1] Blue, Rupert: Public Health Reps., March 20, 1914, p. 677.

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During the past few years reports regarding trachoma among the reservation Indians and the mountain population of Kentucky and other states have stimulated interest in this disease. Investigation has shown that it affects many communities, to a greater or less extent, existing in a number of instances among schoolchildren. Attention has been directed to the great industrial establishments where large numbers of foreign laborers are employed. In each instance, when a focus of the disease has been found, its origin has been carefully investigated so that preventive measures might be instituted. J. W. Schereschewsky of the Public Health Service has examined the 5,962 employees of the Youngstown (Ohio) Sheet & Tube Company with reference to the prevalence of trachoma. He found among them seventy-six cases, a rate of prevalence of 1.3 per cent. Nineteen cases of suspicious conjunctivitis were also observed. Of the employees 28.5 per cent. were Americans. Among the 1,700 Americans the rate of prevalence was 0.23 per cent., and among the seven foreign nations represented the rate ranged from 0.9 to 3.0. After careful inquiry as to the time these men had been in the United States, Schereschewsky expresses the opinion that with but few exceptions the disease was contracted subsequent to landing in this country, and in the great majority of instances while the men were employed in East Youngstown. It was not thought that the disease had been spread to any great extent by conditions in the mills. Close physical contact and the use of the common towel and hand basin are known to be favorable to the spread of trachoma, but these conditions do not prevail in the works of the company. Most of the foreigners do not wash in the mills, and those Americans of the skilled labor class who do, have their own buckets or vessels and towels. One possible source of infection in the mills is the habit of the workmen of removing from each other's eyes foreign bodies that may lodge therein, although they are instructed to apply to the medical service for relief. Attention was directed to the living conditions of the workers, and here Schereschewsky discovered the chief source of infection. Many of the lodging-houses of the workers were much overcrowded. Thus, in one instance twenty-three lodgers were found in a four-room house, as many as ten or twelve in one room. Insanitary conditions prevailed in East Youngstown as well as in the immediate surroundings of the men. The presence of recent cases showed that the disease was gradually spreading from foci of chronic cases in a state of acute exacerbation, some of which Schereschewsky observed. In most instances, perhaps, as at East Youngstown, the cases are among laborers from foreign countries who have been in the United States a comparatively short time. The inspection at the ports of entry serves to detect practically all cases that have reached a stage at which diagnosis is possible; an immigrant when he lands may have the infection in such an undeveloped state that it cannot be detected and he may then in a short time become a focus for the spread of the disease. The employers of labor in the great industrial establishments should be warned of the seriousness of trachoma, and especially of its liability to spread. The health authorities of the cities and towns where these establishments are located should realize their responsibility in this matter. Bad housing, overcrowding and lax personal and community hygiene will contribute to the spread of this highly infectious and disabling but wholly preventable disease.

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**Memorial Institute Occupies New Building.**—The Memorial Institute for Infectious Diseases has moved into its new building at 629 South Wood Street, adjoining the Annie W. Durand Hospital which is conducted by the institute. The new building is equipped with laboratories for the individual workers, a department for the serum division and preparation and animal rooms which are unique in construction and arrangement. The *Journal of Infectious Diseases* will also use the new building as headquarters and all communications should be sent to the new address.

**Health Committee Takes Up Vice Question.**—A new factor has entered into the fight against the social evil in Chicago. The health committee of the city council has voted to hold a public hearing on the recommendations of the vice commission. The health committee last year interested itself in several important matters which, while not recognized by council custom as health subjects, bore on health topics sufficiently to offer an excuse for it to stir up beneficial action. Among these were the garbage problem, the Maxwell Street market investigation, and the quack advertising campaign. So far as is remembered, it is the first time official Chicago had taken up the social evil as a health problem. It is expected that important action will result from this new arrangement.

**Nursing Service at County Hospital.**—The Illinois Training School which has supplied the nursing force for the county hospital for thirty-three years is managed gratis by some of the most influential and reputable women in Chicago. Some of its bills to the county have been questioned recently by the state's attorney and his assistants. In reply, Mrs. Ira Couch Wood, president of the school, has said that if bills are not paid the school will withdraw from the county hospital. The hospital will then be practically forced into closing. Mrs. Wood and other directors of the school were compelled to borrow $5,000 to meet the expense of the institution—to buy food and pay salaries. The April bill of the school has been held up by the county board. Although officially, no reason has been given it is believed to be due to the fact that the state's attorney in a long opinion asserts the school has been overpaid.

**Upholding the Validity of the Milk Ordinance.**—The validity of the Chicago milk ordinance which was attacked by certain milk dealers has been upheld by the supreme court of the state. The milk dealers objected to the provision of the ordinance relating to the installation of recording thermometers on all pasteurizing machines, such thermometers to be under the control of the commissioner of health. Their application for a permanent injunction against the health commissioner was denied. An appeal was taken to the supreme court in which the validity of the ordinance was attacked on account of its alleged unreasonable, unjust and oppressive provisions. The *Bulletin* of the Chicago School of Sanitary Instruction, May 2, in commenting on this decision says that the supreme court in denying the injunction upholds the principles on which the ordinance was based and quotes from the decision as follows: "The city having the power to require milk to be pasteurized is not limited to the imposition of a penalty for a violation of this requirement, but may prescribe the conditions under which the pasteurization shall be done in order to prevent an evasion of the ordinance and insure that the product shall be such as the ordinance requires." The court, taking judicial notice of the importance of pure milk as affecting the public health, further says: "The regulation of its sale is an imperative duty which has been universally recognized. This regulation in minute detail is essential, and extends through all the processes of transportation, preservation and delivery to the consumer. Not only may laws and ordinances require that milk offered for sale shall be pure, wholesome and free from bacilli of any disease, they may and do, in order to produce this result, prescribe the manner in which such purity, wholesomeness and freedom from disease shall be secured and made to appear."

**The Coroner's Report.**—In his biennial report Mr. Peter M. Hoffmann, coroner of Cook County, calls attention to the frequency of deaths from poison due to grasping a wrong bottle. In 1913 there were at least 148 deaths from this cause. The coroner points out the increase in poisoning in the following tabulation:

| | 1910 | 1911 | 1912 | 1913 |
|---|---|---|---|---|
| Accidental | 127 | 103 | 110 | 148 |
| Suicidal | 116 | 115 | 153 | 163 |
| Undetermined | 65 | 66 | 61 | 64 |
| Water heaters | 4 | 7 | 10 | 1 |
| Total | 312 | 291 | 334 | 376 |

circles and in hospital work among physicians and nurses. The results have been so favorable that it would seem to be time to secure the introduction of the practice of typhoid immunization to the public. Nowhere does a better opportunity exist to test it than among the United States seamen of the merchant service. Navigation on the lakes is now just about to open and this is the best possible time to show how much may be accomplished in preventing disorganization of traffic and financial loss from the occasional epidemics of typhoid fever that have occurred in spite of precautions. This can surely and easily be done by the institution of typhoid inoculation. Surgeon-General Blue concludes his open letter by saying that "the United States Public Health Service is ready and willing to render every assistance and advice, and at all relief stations throughout the country service officers are instructed to administer the typhoid prophylactic to all sailors applying for same."

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**Award of Ricketts Prize.**—The Howard Taylor Ricketts prize for undergraduate research work, awarded May 3 each year to a student of Rush Medical College, as a memorial of the death of Howard Taylor Ricketts while engaged in the investigation of typhus fever in Mexico City, has this year been awarded to Julian Herman Lewis.

**Rush Medical College Limits Enrolment.**—Official word has been received that at a recent meeting the faculty of Rush Medical College determined to limit the enrolment of students hereafter to 100 students each for the first and second year classes and 120 students each for the third and fourth year classes. This action has been deemed necessary since the college feels that it can provide the best medical training for classes of that size.

**Memorial Institute Occupies New Building.**—The Memorial Institute for Infectious Diseases has moved into its new building at 629 South Wood Street, adjoining the Annie W. Durand Hospital which is conducted by the institute. The new building is equipped with laboratories for the individual workers, a department for the serum division and preparation and animal rooms which are unique in construction and arrangement. The *Journal of Infectious Diseases* will also use the new building as headquarters and all communications should be sent to the new address.

**Health Committee Takes Up Vice Question.**—A new factor has entered into the fight against the social evil in Chicago. The health committee of the city council has voted to hold a public hearing on the recommendations of the vice commission. The health committee last year interested itself in several important matters which, while not recognized by council custom as health subjects, bore on health topics sufficiently to offer an excuse for it to stir up beneficial action. Among these were the garbage problem, the Maxwell Street market investigation, and the quack advertising campaign. So far as is remembered, it is the first time official Chicago had taken up the social evil as a health problem. It is expected that important action will result from this new arrangement.

**Nursing Service at County Hospital.**—The Illinois Training School which has supplied the nursing force for the county hospital for thirty-three years is managed gratis by some of the most influential and reputable women in Chicago. Some of its bills to the county have been questioned recently by the state's attorney and his assistants. In reply, Mrs. Ira Couch Wood, president of the school, has said that if bills are not paid the school will withdraw from the county hospital. The hospital will then be practically forced into closing. Mrs. Wood and other directors of the school were compelled to borrow $5,000 to meet the expense of the institution—to buy food and pay salaries. The April bill of the school has been held up by the county board. Although officially, no reason has been given it is believed to be due to the fact that the state's attorney in a long opinion asserts the school has been overpaid.

**Upholding the Validity of the Milk Ordinance.**—The validity of the Chicago milk ordinance which was attacked by certain milk dealers has been upheld by the supreme court of the state. The milk dealers objected to the provision of the ordinance relating to the installation of recording thermometers on all pasteurizing machines, such thermometers to be under the control of the commissioner of health. Their application for a permanent injunction against the health commissioner was denied. An appeal was taken to the supreme court in which the validity of the ordinance was attacked on account of its alleged unreasonable, unjust and oppressive provisions. The *Bulletin* of the Chicago School of Sanitary Instruction, May 2, in commenting on this decision says that the supreme court in denying the injunction upholds the principles on which the ordinance was based and quotes from the decision as follows: "The city having the power to require milk to be pasteurized is not limited to the imposition of a penalty for a violation of this requirement, but may prescribe the conditions under which the pasteurization shall be done in order to prevent an evasion of the ordinance and insure that the product shall be such as the ordinance requires." The court, taking judicial notice of the importance of pure milk as affecting the public health, further says: "The regulation of its sale is an imperative duty which has been universally recognized. This regulation in minute detail is essential, and extends through all the processes of transportation, preservation and delivery to the consumer. Not only may laws and ordinances require that milk offered for sale shall be pure, wholesome and free from bacilli of any disease, they may and do, in order to produce this result, prescribe the manner in which such purity, wholesomeness and freedom from disease shall be secured and made to appear."

**The Coroner's Report.**—In his biennial report Mr. Peter M. Hoffmann, coroner of Cook County, calls attention to the frequency of deaths from poison due to grasping a wrong bottle. In 1913 there were at least 148 deaths from this cause. The coroner points out the increase in poisoning in the following tabulation:

| | 1910 | 1911 | 1912 | 1913 |
|---|---|---|---|---|
| Accidental | 127 | 103 | 110 | 148 |
| Suicidal | 116 | 115 | 153 | 163 |
| Undetermined | 65 | 66 | 61 | 64 |
| Water heaters | 4 | 7 | 10 | 1 |
| *Total* | 312 | 291 | 334 | 376 |

He recommends a law prohibiting the use of any but porcupine or serrated bottles and prescribing certain colors and shapes for various tablets. Another feature of the report is a tabulation of the sudden and violent deaths by occupations. This gives an estimate of the number of persons engaged in the various trades and the number of inquests held. Also there is added a percentage column which is referred to as the hazard of the employment. This column gives the number of inquests per 1,000 of persons employed in the 191 listed trades. The figures relate to only one year—1913—and, therefore, are claimed to be indicative only.

The twenty-eight listed by the coroner's report as the most hazardous with the number per 1,000 are as follows:

| | | | |
|---|---|---|---|
| Steeple jack | 20. | Foreman | 5.94 |
| Switchman | 15.93 | Sailor | 5.71 |
| Aviator | 13.33 | Acrobat | 5.55 |
| Watchman | 12.35 | Policeman | 5.13 |
| Porter | 10. | Hostler | 5. |
| Tender | 8.33 | Miner | 5. |
| Teamster | 8. | Blacksmith | 4.71 |
| Yardmaster | 7.50 | Laborer | 4.63 |
| Infants | 7.27 | Car inspector | 4.28 |
| Pilot | 6.66 | Towerman | 4.16 |
| Roofer | 6.66 | Painter | 4.4 |
| Window washer | 6.66 | Peddler | 4.40 |
| Oiler | 6.25 | Patternmaker | 3.75 |
| Actor | 6. | Waitress | 3.66 |

The coroner makes a plea to employers for more efficient safeguards to protect those in "extra hazardous employments."

## LOUISIANA

**Tuberculosis Camp.**—Dr. Oscar Dowling announces that the State Board of Health is now considering a 1,200-acre tract in Rapides Parish, and also a tract in St. Tammany Parish, on which to establish a state tuberculosis camp.

**Reporting Notifiable Diseases.**—By an amendment to the sanitary code of Louisiana, dated April 24, 1914, physicians are required to report notifiable diseases both to the state health officer and to the local board of health. Such reports are to be made within twenty-four hours.

**Arrival of Mexican Refugees.**—Up to April 28, about 300 refugees from Mexico had landed at the quarantine station near New Orleans. The British steamer *Wyvisbrook* landed 100 from Progresso April 26; the *Livingston* brought 13 from Frontera April 27, and the United States Collier *Jason* landed 260 from Vera Cruz April 28. All were held in strict quarantine regulations for six days on account of the prevalence of yellow fever and small-pox in Mexico.

## MARYLAND

**Cordell Memorial Fund.**—A movement is on foot to start a fund, the proceeds of which are to be used to erect a tablet to the memory of Dr. Eugene Fontenoy Cordell, for many years the Maryland correspondent for THE JOURNAL. Subscriptions may be sent to Dr. Nathan Winslow, 608 Professional Building, Baltimore.

**Campaign for Mercy Hospital Ends.**—The campaign to raise $320,000 for Mercy Hospital, which began two weeks ago, has come to a close with contributions aggregating $120,948.96. Pledges for assistance within the year have been given members of the committee and their plans will no doubt be fully carried out within a year or two.

**Fined for Medical Violation.**—That a serious view of violations of the medical laws of Maryland is being taken was indicated when the court inflicted the maximum penalty on Leon Schatz, the proprietor of the Philips Medical Institute, who was fined $200 and costs. Schatz, who is not a registered physician, was said by Dr. Herbert Harlan, president of the Board of Medical Examiners, to have been an especially dangerous violator of the medical laws.

**Personal.**—Dr. Hiram Woods, Baltimore, has been appointed a member of the Board of State Aid and Charities.——Dr. Henry Barton Jacobs, Baltimore, was elected secretary of the National Association for the Study and Prevention of Tuberculosis at the annual meeting of the association held in Washington.——Dr. William H. Scruggs, Jr., of the staff of the state sanatorium, Sabillasville, has declined the position of second assistant physician to the Massachusetts State Hospital for Tuberculosis, Lakeville.——Dr. Hampson H. Biedler, Baltimore, has been seriously ill with ptomain poisoning.

## MISSOURI

**Annual Sociability-Dinner.**—The annual sociability dinner of the St. Joseph-Buchanan-Andrews County Medical Society was held May 6. The guest of honor was Dr. Bransford Lewis, St. Louis, who delivered an illustrated lecture after the dinner.

### St. Louis

**Personal.**—Dr. Henry M. Whelpley of the Missouri Historical Society delivered an illustrated lecture on "Mounds and Mound Builders of Illinois," before the Chicago Historical Society, April 23.

**New Buildings for Isolation Hospital.**—An ordinance has been passed, authorizing the erection of two new wards for the Isolation Hospital, to be located between the sanatorium and the infirmary.

**Psycho-Educational Clinic.**—A department was created by the Board of Education, April 13, to be known as the Psycho-Educational Clinic. This clinic will be located at the Harris Teachers' College. The work of the clinic will consist of the examination of subnormal children, and the suggesting of a modified course of study for these unfortunates.

**Summer School of Medicine.**—St. Louis University announces summer school of medicine and science to be in session from June 1 to July 11. The work of the school is adjusted to the needs of physicians, medical students, students preparing to study medicine and teachers. No course will be given with less than three students, and two courses in college or laboratory work will constitute full work. For the fundamental courses, the laboratories of the university will be utilized. For detailed information regarding these courses address Dr. Daniel M. Schoemaker, 1406 S. Grand Avenue.

## NEW YORK

**Scarlet Fever in Hempstead.**—The Board of Health closed three public schools in Hempstead, L. I., on May 7, because of an outbreak of scarlet fever, nine cases having been reported within a week. It is rumored that there were a number of cases not reported.

**Personal.**—Dr. Henry T. Williams was unanimously reelected president of the Rochester Health Association.——Dr Raymond Sanderson, Canandaigua, has been appointed pathologist of Ulster County.——Dr. William J. Prish, Fredonia, is reported to be ill with small-pox.

**County Laboratory Opened.**—The new laboratory for Onandaga County opened May 1, with Dr. C. Grace Carroll in charge. The laboratory was heretofore in the charge of the Syracuse Bureau of Health. The work will include examinations of microscopic specimens, cultures, etc., for physicians, and also examinations of water and milk.

**Syracuse Health Bulletin.**—The first monthly bulletin of the Syracuse Bureau of Health appeared May 4. Infant welfare was the chief topic of interest. "Efficiency First, Safety Alway and Courtesy to All," is given as the motto of the bureau. Two maps of the city were shown, one of which indicated by shading the location of recorded births during 1913, the other in a similar way showing the location of deaths among infants.

**Farm Home for Inebriates.**—Under the law of June 20, 1910, providing for a board of inebriety of the state of New York, steps have been taken to establish a farm home for the treatment and care of such persons. A farm has been purchased in Orange County which includes a portion of Wickham Lake, and work has been begun on the institution, which is to be on the cottage plan. About 250 inmates will be provided for at first and the plans at present are intended to accommodate 800. Massachusetts is the only other state which has provided an establishment especially designed for the care of inebriates. The board has just issued its report for 1913.

### New York City

**Another Case of Typhus Arrives.**—A well developed case of typhus fever was discovered among the passengers of the Greek steamship *Ioannina*. Of the 508 steerage passengers all had been allowed to land but 100 before the fever victim was discovered. These 100 were detained on Ellis Island.

**Changes in Faculty.**—Dr. Frederick Peterson has resigned his position as professor of psychiatry at Columbia University. Dr. J. Ramsey Hunt has resigned as associate professor of neurology to take effect on June 30, and Dr. Frederick Tilney, now associate in anatomy, has been appointed to succeed him.

**Bathing Suits Must Be Sterilized.**—The Board of Health has issued rules governing bathing beaches. These rules require that all bathing apparel in public bath houses shall be sterilized every time after they have been used and that water from wells at such resorts shall not be used for drinking purposes until analysis by the Board of Health shows that it is free from danger of contagion.

**More Small-Pox.**—On May 4 another case of small-pox was reported to the Board of Health, and the following day three additional cases were reported from the same house. This makes in all 18 cases that have been reported thus far this year. Coincident with the order of the Health Department requiring that the 138,853 children in the parochial schools of this city be vaccinated, Charles M. Higgins, treasurer of the Anti-Vaccination League of America, has published an advertisement warning parents not to have their children vaccinated or revaccinated under "any form of compulsion, intimidation or coercion, or through any false panic created by medical individuals or societies, professionally interested in vaccination."

**Proposes Medical Supervision for All.**—Dr. Sigismund S. Goldwater, commissioner of health, proposes a method of medical supervision which would call for periodical physical examination of every individual in the city and the instruction of laymen in elemental hygiene. The records of the department show that victims of diseases like cancer, heart and kidney disease, etc., consult a physician on an average one year too late for remedial measures to be of value. In insurance companies and large corporations where the plan has been tried good results are being reported. Dr. Goldwater points out that through the division of child hygiene school children are kept under such supervision and there is no good reason why the plan should not be extended to include all. He proposes that the examinations shall be paid for by those able to pay and be free to all others.

## NORTH CAROLINA

**Personal.**—Dr. Samuel W. Stevenson, Mooresville, is reported to be seriously ill as a result of a cerebral hemorrhage.——Dr. Benjamin E. Washburn, Raleigh, who has been engaged in the hookworm work for several years, has become whole-time health officer of Nash County.

**Abandon Sanatorium Plan.**—On account of the widespread opposition to the location of a sanatorium for tuberculosis in what is known as the tourists' zone around Asheville, Drs. William L. Dunn, Charles L. Minor and G. R. Moale have abandoned their project for the establishment of a sanatorium to cost $250,000. The Board of Trade and other citizens of Asheville are reported to have purchased the property which it was proposed to use for the sanatorium plant.

**Opening of Park View Hospital Announced.**—The formal opening on June 1 of Park View Hospital, Rocky Mount, is announced. It is intended to care for all medical and surgical cases, other than acute infections. The official staff is composed of Drs. J. P. Whitehead, Richard H. Speight, Jr., Emile B. Quillian and Joe P. Speight, all of Rocky Mount, Drs. George Ben. Johnson and A. Murat Willis, Richmond, Va., are also announced as consulting surgeons. Dr. Edmund S. Boice, late of Richmond, Va., will be house physician.

## OHIO

**Meningitis in Cleveland.**—Thirteen cases of cerebrospinal meningitis were reported in Cleveland during April. Ten deaths occurred.

**State Association Meeting.**—At the sixty-ninth annual meeting of the Ohio State Medical Association in Columbus, May 5-7, the following officers were elected: president, Dr. John H. J. Upham, Columbus; president-elect, Dr. William E. Lower, Cleveland; secretary-treasurer, Dr. Clarence D. Selby, Toledo (reelected); councillors, first district, Dr. Robert Carothers, Cincinnati; sixth district, Dr. T. Clark Miller, Massillon; ninth district, Dr. Joseph S. Rarden, Portsmouth; delegates to the American Medical Association, Drs. Clarence D. Selby, Toledo; Jacob A. Kimmel, Findlay, and James C. M. Floyd, Steubenville; alternates, Drs. Jacob E. Tuckerman, Cleveland; Sidney Lange, Cincinnati, and George F. Zinninger, Canton. Cincinnati was selected as the meeting place for 1915.

**Organization of Advertising Quacks in Ohio.**—According to the Ohio State Medical Journal, April, 1914, the advertising doctors of Ohio have an organization known as the Ohio Medical Advertising Association. The purpose of the association, as stated in its constitution, is to protect its members from prosecutions, chiefly by the State Medical Board for revocation of their licenses. Its membership includes representatives of a number of medical cults. In a letter asking for funds, the statement is made that both the Ohio State Medical Board and the American Medical Association are prosecuting advertising quacks. A test case is now pending in the courts of Ohio which involves the revocation of the licenses of L. W. Hunt of Toledo and Dr. Graham of Columbus. No limit is placed on the amount of fund that may be raised for the fighting of prosecutions as the constitution provides that pro-rata assessments may be ordered to pay all expenses. Smith Bennett, an attorney formerly employed by the State Medical Board, has been retained as their counsel.

### Cincinnati

**Personal.**—Dr. Walter E. List, assistant superintendent of the Longview Hospital, has been appointed to a similar position in the Cincinnati City Hospital.——Dr. Charles L. Bonifield has been elected president and Dr. Frank E. Fee, secretary-treasurer of the Ohio State Clinical Association.——Dr. Louis Stricker has been appointed assistant clerk, to examine applicants for the blind relief fund.——Dr. E. Hertoghe, a member of the Royal Academy of Medicine, Antwerp, was the guest of Dr. B. Merrill Ricketts and Dr. Charles T. Souther at a dinner April 25. In the evening Dr. Hertoghe delivered an illustrated lecture on "Cretinism" in the amphitheater of the City Hospital.

## PENNSYLVANIA

**Personal.**—Dr. Ellis M. Frost has been appointed director of health of the University of Pittsburgh, and not of the Department of Health of Pittsburgh, as announced in the issue of May 9.——Dr. Samuel P. Glover, Altoona, has returned from abroad.

**Reorganization of Health Department.**—May 4 the new Department of Health of Chester assumed charge of health affairs of the city, equipped with police power, so that it can take immediate action without having to give ten days' notice as formerly. Dr. W. Knowles Evans is to be chief of the department.

**Tuberculosis Conference.**—The fourth annual conference of the Pennsylvania Tuberculosis Workers was held at the Bellevue-Stratford Hotel, May 6. The morning session was presided over by Dr. Frank A. Craig, Philadelphia, and Dr. William C. White of Pittsburgh presided over the afternoon meeting. Alexander M. Wilson, assistant director of the Department of Health and Charities, advocated the building of tuberculosis hospitals by the city and urged the establishment of day camps. Dr. Meyer Solis-Cohen urged that the city park have self-supporting day and night camps, where tubercular patients might rest and live in the sun and air, in fact, that the parks be made a place for the sick as well as the healthy; Bernard J. Newman, secretary of the Philadelphia Housing Commission, spoke of the great necessity for better housing conditions, for frequently patients discharged from a sanitarium, return to the insanitary conditions of their homes.

### Philadelphia

**Personal.**—Dr. John K. Mitchell has been elected to the vacancy on the board of directors of the Library Company of Philadelphia, created by the death of his father, Dr. S. Weir Mitchell, who had been a director since 1875.——Dr. Alexander F. Hazard is seriously ill at his home.

**Meeting of College of Physicians.**—At the stated meeting of the College of Physicians of Philadelphia, a portrait of Sir William Osler was presented on behalf of Lady Osler, to the college, Dr. James Tyson making the presentation address. A symposium on municipal hygiene was held, at which Mr. M. N. Baker, editor of *Engineering News*, spoke on "Considerations of Municipal Sanitation," and Dr. S. Josephine Baker of New York City, spoke on "The Organization of the Bureau of Child Hygiene in New York City and Its Results."

**State Board to Sue Coroner.**—The difference of opinion between Coroner Knight and the State Anatomical Board over the disposition of unidentified bodies found in Philadelphia County, will be carried into court for adjustment. The board claims that the coroner has been withholding bodies which should be sent to various hospitals for dissecting purposes. The coroner contends that he has only a few bodies to give to the board for the advancement of medical education. Arrangements are being made for an amicable test case.

**Hospital Reports.**—The one hundred and sixty-third annual meeting of the Pennsylvania Hospital Corporation was held May 4, at that institution. In the year ended February 28, 4,154 patients were treated at the hospital; 28,986 patients were treated in the receiving wards and 21,012 cases were treated in the outpatient department. In the financial report it was shown that $420,431 had been expended in the last year for the three departments, the hospital at Eighth and Pine Streets and the insane departments at Forty-Ninth and Market and Forty-Fourth and Market Streets.——The fortieth annual meeting of the Jewish Maternity Association was held May 3 at the temporary hospital on North Sixth Street. Dr. Isaac Leopold was elected medical director. The new hospital now in the course of erection, at Fifth and Spruce Streets, will be opened June 1. The new building will cost about $87,000.——The Providence General Hospital has purchased a residence and tract of 6 acres for $40,000 on Wissahickon Avenue, 162 feet, with a depth of 587 feet on Hermit Street, 431 feet on the northeast line and 614 feet on the line of Fairmount Park.——The new building of the Lebanon Hospital was dedicated May 3. Drs. Isidore D. Stern and J. L. Lillenblum were named resident physicians.

## VIRGINIA

**Typhoid Vaccine Distributed.**—The State Board of Health has completed arrangements whereby it will distribute antityphoid serum at a cost of 60 cents, for the three inoculations, instead of 90 cents, as charged last year.

**Must Pay Tax this Year.**—The act recently passed by the assembly exempting physicians from payment of license tax will not take effect until June 20, and the auditor of public accounts has ruled that physicians shall be assessed for licenses for 1914, as heretofore.

**Personal.**—Dr. Meade Ferguson, state bacteriologist, has resigned and his assistant, J. O. Fitzgerald, has been appointed temporary head of the state bacteriologic laboratory.——The residence of Dr. Alexander W. Terrell, Rivermont, Lynchburg, was burned. with a loss of $10,000.

**Frees Community from Malaria.**—One Virginia community, in the vicinity of Chestnut Level and Keeling, Pittsylvania County, by taking the advice of the State Health Department and draining the low ground of the neighborhood, and by united effort has practically abolished malaria and in addition has restored and rendered valuable many acres of valuable inundated and previously worthless land.

**Monument to Dr. Edwards.**—As a tribute to the memory and faithful service of the late Dr. Landon B. Edwards, who was for many years secretary of the Virginia Medical Society, editor of the *Virginia Medical Semi-Monthly* and professor of the practice of medicine in the Medical College of Virginia, the members of the medical profession of the state have united to erect a monument for his grave in Hollywood Cemetery, Richmond. The monument bears the following inscription: "Erected by his friends to the memory of Landon Brame Edwards, M.D. Born Sept. 20, 1845; died Nov. 27, 1910. Widely known as a medical practitioner, journalist and teacher, and for many years the efficient secretary of the Medical Society of Virginia."

**New Medical Board.**—The governor announced, April 1, the appointment of the new State Board of Medical Examiners to conform to the recent revision of the board authorized by the general assembly. Under the new law there is to be one representative from each congressional district, one homeopathic and one osteopathic representative, irrespective of districts. The board was made up as follows: first district, Dr. Joseph N. Barney, Jr., Fredericksburg; second district, Dr. Herbert Old, Norfolk; third district, Dr. Junius E. Warinner, Richmond; fourth district, Dr. Otho C. Wright, Jarratt; fifth district, Dr. Richard S. Martin, Stuart; sixth district, Dr. John W. Preston, Roanoke; seventh district, Dr. Philip W. Boyd, Jr., Winchester; eighth district, Dr. Lewis Holladay, Orange; ninth district, Dr. William W. Chaffin, Pulaski; tenth district, Dr. Robert Glasgow, Lexington; homeopathic representative, Dr. Harry S. Corey, Richmond; osteopathic representative, E. H. Shackleford, Richmond. The board met for reorganization at Norfolk, April 6, and elected the following officers: president, Dr. Richard S. Martin, Stuart; vice-president, Dr. Junius Warinner, Richmond; secretary-treasurer, Dr. Joseph N. Barney, Jr., Fredericksburg.

## WISCONSIN

**Sanatorium Notes.**—The contract for the construction of the Brown County Tuberculosis Sanatorium, to be erected on the E. Williams farm in the town of Little Rapids, was awarded April 27 for $14,667.25. The building will be of reinforced concrete and will accommodate about fifty patients.

**New Officers.**—Milwaukee North Side Physicians' Club, May 1: president, Dr. Albert E. Miedling; secretary-treasurer, Dr. George R. Randall.——Oshkosh Medical Club, April 29: executive committee, Drs. William P. Wheeler, Harry H. Meusel, Jasper W. Lockhart; secretary, Dr. Wilbur N. Linn.——Iowa County Medical Society at Dodgeville, April 23: president, Dr. William J. Pearce, Dodgeville; secretary-treasurer, Dr. Homer D. Ludden, Mineral Point.

## WYOMING

**Personal.**—Dr. and Mrs. Edward F. Fisher and family, Diamondville, have returned from Europe.——Dr. Josiah H. Holland has resigned from the medical corps of the Army and is located in Evanston.

**Physician Captures Burglar.**—Dr. Thomas J. Swisher, Rawlins, on April 28, surprised a burglar in the pharmacy adjacent to his office. As the invader, a Mexican, ran, the physician fired, and a bullet penetrated the burglar's right side in the region of the liver. Aid was summoned and the Mexican was carried to the hospital where Dr. Swisher dressed the wound. The Mexican was sentenced five days later, after pleading guilty, to serve a term in the penitentiary.

## GENERAL

**Correction of Error.**—In Abstract 134, in The Journal, Feb. 14, 1914, p. 582, the formula for a mixture is given as 0.1 gm. of mercuric cyanid when it should read 0.1 mgm.

**Extra Appropriation Asked for Public Health Service.**—Secretary of the Treasury McAdoo, in behalf of the Public Health Service, has asked the House of Representatives for an appropriation, to be made instantly available, of $100,000 to prevent the introduction and spread of infectious diseases, as the current year fund for this purpose is already exhausted.

**Camp for Refugees.**—Surgeon Gustave M. Corput, U. S. P. H. S., surgeon in chief of the New Orleans Quarantine Station, is preparing to erect a camp at the station to shelter and feed about two thousand refugees. Plans have been submitted for a camp of approximately 400 tents. The frame structures of the camp have been turned over to the women refugees.

**Personal.**—The president of the Chinese Republic has conferred on Dr. T. W. Ayers, formerly of Anniston, Ala., but now in charge of the hospital and medical dispensary at Hwang-Hein, North China, the decoration of the Sixth Order of Chia Hoa.——Dr. A. R. Goodman, chief surgeon of the National Railways of Mexico, has been left in charge of the relief operations of the American Red Cross at Vera Cruz.

**Foes of Tuberculosis Meet.**—At the annual meeting of the National Association for the Cure and Prevention of Tuberculosis in Washington, May 4-8, the following officers were elected: president, Dr. George M. Kober, Washington; vice-presidents, Drs. Lee K. Frankel, New York City, and Walter Jarvis Barlow, Los Angeles; secretary, Dr. Henry Barton Williams, Baltimore, and director, Surgeon-General Rupert Blue, U. S. P. H. S., Washington.

**Formation of New Roentgen Organization.**—The Roentgen Society of New England was formed at a meeting of about twenty roentgenologists, held at the office of Dr. Arial W. George of Boston, May 6, 1914. An organization was effected and the regular program will begin in the fall. The officers elected were the executive committee: chairman, Dr. Arial W. George, Dr. Walter J. Dodd, Dr. Samuel W. Ellsworth, and secretary, Dr. Ralph B. Leonard, all of Boston.

**Report of the Rockefeller Sanitary Commission.**—The report for 1913 of the Rockefeller Sanitary Commission for the Eradication of Hookworm Disease shows that the number of persons treated in eleven states during the year was 186,277, an average of 616 persons for each working day of the year. The average for 1912 was 720. The area covered during 1913 had lighter infection than during the previous years. The commission expended $195,900 and examined 480,951 persons, the expense for each examination being 40 cents and for those treated $1.05. The various states expended amounts ranging from $200 to $8,000.

**Death-Rate in Canal Zone for March.**—The total number of deaths from all causes among employees was 34 (disease 24, violence 10), an annual average per thousand of 6.18 and 2.57, respectively. The annual average death-rate per thousand in the cities of Panama and Colon, and in the Canal Zone, including both employees and civil population, for the month of March was 25.48. Among employees, deaths from the principal diseases were: lobar pneumonia, 5; organic disease of the heart, 1; tuberculosis, 3; typhoid fever, 1; malaria fever, 2; leaving 12 deaths from all other diseases, and 10 deaths from external violence. No case of yellow fever, small-pox, or plague originated on, or was brought to the Isthmus during the month.

**International Society for Sexual Research.**—The first congress of this association will be held in Berlin, October 31 to November 2, 1914. It will cover the entire field of scientific sexual research, and will be divided into a biologic-medical, a sociologic, a legal and a philosophic-psychologic-pedagogic section. The proceedings will be conducted in German, English and French. Among the addresses already listed are essays by some of the more famous foreign authorities on these subjects. Participation in the congress is free to members of the society. Non-members are expected to pay a registration fee of 10 marks. Those desiring to participate should communicate with the second secretary, Dr. Max Marcuse, Berlin W. 35, Lützowstr. 85.

**Bequests and Donations.**—The following bequests and donations have recently been announced.

Germantown Hospital and St. Luke's Hospital, Philadelphia, each $5,000; Chestnut Hill Home for Consumptives, $2,000, by the will of Elizabeth B. Jeffries.

Associated Jewish Charities of Chicago, $1,000, and Chicago Home for the Friendless, $500, by the will of Henry Grenebaum.

Elkins Memorial Hospital, Abingdon, Pa., a gift of $5,000 for the endowment of a room in memory of John Wilton Coldon, Jenkintown.

Medical Department of the University of Cincinnati, $30,500, in municipal bonds, and $900 in cash, to be known as the Thomas Gibson Medical Endowment Fund, being the residue of the estate of Frances W. Gibson.

New Orleans Charity Hospital, $8,000, by an anonymous donor for a modern annex, to be devoted entirely to tuberculosis patients.

**International Health Commission.**—The International Health Commission of the United States, founded with a fund of approximately $100,000,000 guaranteed by Mr. John D. Rockefeller and his friends, is studying the problems presented by tropical medicine, and a beginning is being made with ankylostomiasis. Mr. Wycliffe Rose, the director of the commission, has visited several of the West Indian islands to make arrangements with the local authorities, and he has recently conferred in London with a committee of the colonial office, which it is intended shall in future work in conjunction with the American commission. Mr. Rose, who has been joined by Dr. Sandwith of the London School of Tropical Medicine, is visiting Egypt, Ceylon, the Federated Malay states and the Philippine Islands. At the present time Dr. Leiper of the London School of Tropical Medicine is in China studying bilharziosis under the auspices of the Admiralty and Colonial office. It is understood that he will extend his investigation to the occurrence of ankylostomiasis among coolies on tea estates.

**Association for the Prevention of Infant Mortality.**—The Transactions of the American Association for the Study and Prevention of Infant Mortality,for the year 1913, is now being distributed. It is a pamphlet of nearly 450 pages, containing many interesting papers and discussions on this important branch of national welfare, beside committee reports and a record of the routine transactions of the association. Nov. 15, 1913, the association had 716 members who had paid their dues, seventeen of whom were from foreign countries—Canada, China, England, New Zealand and Scotland. Hawaii and the Philippines are each represented by one member. There are, however, eighty-five affiliated societies in fifty-three towns in twenty-seven states, which would indirectly increase by a considerable number the workers along this line of social endeavor. The association works in harmony, also, with the National Childrens' Bureau. The financial statement shows that about $7,500 was collected during the year and about $6,500 expended. The price of the transactions to non-members is $3.12 postpaid. Austin McLanahan is treasurer and Gertrude B. Knipp is executive secretary, with headquarters at 1211 Cathedral Street, Baltimore.

## FOREIGN

**New Officers.**—At the annual meeting of the American Medical Association of Vienna, March 24, the following officers were elected: president, Dr. Edgar J. Widby; vice-president, Dr. Henry H. McCarthy; secretary, Dr. William F. Patten; treasurer, Dr. H. E. Molzahn, and executive committee, Drs. J. W. Lee, Charles H. McCollom, H. E. Molzahn, Baxter L. Thompson and W. B. Hopkins.

## CANADA

**School for Feeble-Minded Contemplated.**—British Columbia is considering a scheme to provide a school for the mentally deficient children in that province. A census of these is being taken. This will be the first of its kind in Canada although Manitoba is also considering establishing one.

**Personal.**—Dr. Alexander B. Osborne, Hamilton, Ont., has returned from a two-months' stay in Jamaica.——Dr. Allan C. Rankin, formerly of Montreal, but who has been bacteriologist for some time to the King of Siam, has joined the faculty of the University of Alberta.——Dr. Herbert E. Clutterbuck, Toronto, is spending six months in Great Britain.

**Postgraduate Course on Tuberculosis.**—The Bruchesi Institute, Montreal, for the study of all forms of tuberculosis, will conduct its second annual series of postgraduate courses on early diagnosis and treatment of this disease. The first class is limited to six members and will commence study on June 6, when Dr. S. Adolphus Knopf, New York, will deliver the first lecture.

**Health Status of Winnipeg.**—The total expenditure for the Health Department of Winnipeg in 1913 was $212,070.54. The population is estimated at 200,000. There were 232 cases of typhoid fever with 18 deaths; small-pox, 44, with 1 death; chicken-pox, 173; measles, 361, with 15 deaths; scarlet fever, 1,288, with 45 deaths; whooping-cough, 57, with 19 deaths; mumps, 44; diphtheria, 281, with 34 deaths; erysipelas, 95, with 19 deaths; tuberculosis, 213, with 132 deaths; a total of 2,788 cases of infectious diseases, with 283 deaths.

**Campaign against Infant Mortality.**—Montreal's Health Department is preparing for a vigorous campaign against infant mortality during the approaching summer months. Circulars to mothers are now being prepared, printed in English, French, Italian, Russian, Hebrew and German; and these will be distributed when there is a birth recorded. Lectures will also be given to mothers with young families when the circulars will also be distributed. The fly nuisance and the milk-supply is also to be given special attention.

**Ontario Health Officers Meet.**—Civic, provincial, district and municipal officers of health of Ontario met in annual convention in Toronto, May 7 and 8, under the presidency of Dr. Charles J. C. O. Hastings, M.O.H., Toronto. Dr. John W. S. McCullough, secretary of the Ontario Board of Health, presented the statement that "the reports of the district officers of health in that province indicated that the conditions in the slaughter-houses of Ontario are nothing short of scandalous. The premises are often filthy and the conditions are such that if generally known would make Ontario citizens all vegetarians." The salaries of municipal officers of health came in for considerable discussion and resulted in a special committee being appointed to inquire into the same and report at the next annual meeting. This was precipitated by the report of a medical officer of health of an Ontario town who said that he was paid $10 per annum for looking after the health of that town. A startling statement was given by one officer of health who said that the public schools of Ontario, that is the village and rural schools, were in a deplorable, unkempt condition, and that they were so managed as to contribute a large percentage of the tuberculosis in that province. He pointed out that 30 per cent. of the deaths among students in Ontario, from the official returns, resulted from tuberculosis; and that 24 per cent. among schoolteachers was also caused by this disease while only 7 per cent. of the deaths of other people were from tubercular disease. More children in Ontario died between the school ages of 5 and 14, from preventable diseases than adults did between the ages of 50 and 60, from all diseases. The speaker described the conditions in thirty schools in the two townships he had control of, but these were only typical of all Ontario schools. He further stated that 25 per cent. of the schools had no wells, and of those which had, 25 per cent. of them had bad water. Twenty-five per cent. had windows which would not open, 50 per cent. had filthy closets and 75 per cent. no cloak rooms. Dr. Edmund E. King, Toronto, spoke briefly on the Ontario Workmen's Compensation Act, stating that the medical profession had been absolutely excluded. The following officers were elected: president, Dr. William R. Hall, Chatham; vice-president, Dr. Angus W. McPherson, Peterborough, and secretary, Dr. John W. S. McCullough, Toronto.

## LONDON LETTER

London, May 1, 1914.

### The Annual Meeting of the British Medical Association

The annual meeting of the British Medical Association will be held from July 28 to August 1, at Aberdeen; 1,500 members and visitors are expected to attend. The president, Sir Alexander Ogston, will deliver the presidential address. The subject has not been determined, but it probably will deal with the part which Aberdeen has played in the history of Scotland, and the influence which it has had on its commerce and education. The popular lecture will be delivered by J. Arthur Thomson on the subject *"Vis Medicatrix Naturae."* He will discuss the value to man of the beauty of Nature, the dramatic interest of Nature, and the consolations of Nature as seen in the light of evolutionist philosophy. The address in medicine will be delivered by Dr. Archibald E. Garrod, and the address in surgery by Sir John Bland-Sutton. The scientific business will be conducted in sixteen sections. In the Section of Dermatology a discussion will be opened by Dr. Norman Walker on "The Need for Some Method in the Conflict with Lupus and Ringworm." In the Section of Electrotherapeutics and Radiology, Professor Leduc will deliver an introductory address on "Cerebral Galvanization." The first day's meeting will be devoted to this and to a discussion on "The Therapeutic Uses of High-Frequency Currents." Dr. W. Deane Butcher and Dr. John Macintyre will open a discussion on "The Comparative Value of X-Rays and Radium in the Treatment of Malignant Growths," and Dr. Agnes Savill and Dr. W. F. Somerville will open a discussion on "Electrotherapy in Neurasthenia"; there will also be a demonstration on "Muscle Testing by Means of Condensers." For the last day, discussions have been arranged on "X-Ray Diagnosis in Gastro-Intestinal Conditions," and with the Section of Medicine on "The Diagnosis of Chronic Pulmonary Tuberculosis." In the Section of Medicine a joint discussion with the Section of Pediatrics on "The Diagnosis of Chronic Pulmonary Tuberculosis in Infancy and Childhood" will take place. The discussion will be opened by Dr. Barty King, Dr. Clive Riviere and Dr. Ironside Bruce. Sir William Osler, Professor von Pirquet, Dr. Frank Eve, and it is hoped Professor Baginsky of Berlin will take part. A discussion on "Artificial Pneumothorax in Pulmonary Tuberculosis" is to be opened by Dr. Rist of the Laennec Hospital, Paris. It is expected that Brauer of Hamburg, will also contribute. A discussion on "Headache: Its Causes and Treatment" will be treated from various points of view by Dr. Harry Campbell, who is to open, Mr. Leslie Paton, Sir William Osler and Dr. L. H. Pegler. In the Section of Naval and Military Medicine and Surgery the following subjects have been arranged: (1) "The Treatment of the Wounded in Naval Warfare," to be opened by Fleet-Surgeon D. W. Hewitt; (2) "Gangrene in War," to be opened by Captain C. Max Page; (3) "Salvarsan in the Treatment of Syphilis," and (4) "Common Ailments in Camp: Their Prevention and Treatment," to be opened by Captain Cecil Johnson. Three discussions have been arranged provisionally in the Section of Ophthalmology: "The Choice of Cataract Operation," will be opened by Mr. E. E. Maddox, "The Hygiene of Reading and Near Vision" will be opened by Mr. J. Herbert Parsons, and "The Teaching of Ophthalmology to Medical Students" will be opened by Dr. Maitland Ramsay. In the Section of Pathology and Bacteriology the president, Dr. W. S. Lazarus-Barlow, will open a discussion on "The Action of Radiations on Cells and Fluids." A discussion on "The Importance of Biochemistry in Immunity Reactions" will be opened by Dr. Carl Browning. There will be a joint discussion with the Section of Pharmacology, opened by Dr. Thomas Lewis on "The Pathology of Heart Function, Including the Experimental Pharmacology and Therapeutics of Pathologic Conditions of the Heart." Dr. W. J. Penfold will introduce the subject of "The Importance of Variability Among Bacteria and its Bearings on Diagnosis." In the Section of Pharmacology discussions will take place on "Recent Advances in the Relationship between Chemical Constitution and Pharmacologic Activity," and on "The Pharmacology and Therapeutics of the Animal Extracts, Exclusive of Thyroid Extract." In the Section of Surgery a subject discussed at the recent International Medical Congress, "Anoci-Association, or the Evolution of the Shockless Operation," will be opened by Mr. H. M. W. Gray. Discussions will be opened by Mr. Robert Jones on "The Surgical Treatment of Arthritic Deformities" and by Mr. W. G. Spencer on "The Etiology and Treatment of Carcinoma of the Tongue." In the Section of Tropical Medicine: (1) "The Training and Position in Administration of the Sanitarian in the Tropics" will be opened by Colonel King; (2) "The Surgical Treatment of Colitis and Postdysenteric Conditions" will be opened by Mr. James Cantlie, and (3) "Kala Azar and Allied Conditions" will be discussed. Papers on "Sprue," "Sand-Fly Fever" and "Beriberi" have been promised, and others are being arranged. A special subsection of the museum is being reserved for exhibits in tropical medicine and for an exhibition of ancient and historical surgical instruments.

## PARIS LETTER

Paris, April 28, 1914.

### The Physician's Right to Have a Reserve Stock of Medicines

The sale of poisonous substances is regulated in France by an old royal ordinance of Oct. 26, 1846, which provides that such substances may not be sold for medical use except by pharmacists, and then only to fill prescriptions written by physicians or veterinarians. A tacit understanding has existed between physicians and pharmacists, to avoid this obsolete ruling, but a recent decision of the Court of Appeals of Paris (The Journal, Feb. 28, 1914, p. 711) has just destroyed the régime of tolerance and placed the medical profession under the legislation of 1846, without subsequent evolution in medical practice.

This return to the letter of superannuated legislation inconveniences medical practitioners in the extreme, and at its last meeting the Syndicat médical de Paris demanded unanimously, on the motion of Drs. Chassevant, *agrégé* professor of the Faculté de médecine de Paris, and Désquelle and Granjux, that an additional paragraph be inserted in the decree concerning the sale of poisons, by which pharmacists shall be authorized to furnish physicians medicinal preparations of any nature for professional purposes on the presentation of an order, written, dated and signed by the physician, stating that the demand is made in view of his professional needs; this order to be filed by the pharmacist as his guaranty.

### Leave of Absence for Convalescent Soldiers

It has been a long-established custom in military hospitals for physicians to demand a certain number of days' leave for any convalescent soldier in need of rest which would permit the patient to remain with his family until his recovery. Until now, the heads of the divisions have always accorded this permission. Recently, however, the commander of a corps, considering this tradition an encroachment on the authority of the officer in command, declared in a circular letter, that henceforth, since some men are in no condition to return to the service immediately on leaving the hospital or infirmary, it shall be the privilege of the commanding officer, after consideration of all the circumstances, to decide on the disposition of the convalescent.

Concerning this circular letter, the most influential military journal, the *France militaire,* says that this is an abusive interference with the rights of the physician: that the soldier who is in need of a certain time for rest, following a sickness, would not be able to find it in a barrack, and that it is obvious that the question whether or not he may be sent to his family should be determined solely from the medical point of view, uninfluenced by the needs of the service, or the commander's more or less favorable opinion of the conduct of the man.

### The Rational Timing of Meals

At one of the last sessions of the Académie des sciences, Dr. Bergonié, professor of biologic physics and of the clinic of medical electricity at the Faculté de médecine de Bordeaux, gave an interesting address on the practicability of so changing our meal-times as to adapt them better to the physiologic needs of the body. According to Bergonié, the hours least suited to heavy meals are from noon to 1 p. m., and from 7 to 8 p. m. The curve of the coefficient of energy has passed, indeed, some time before, to its lowest level, and any large meal, taken at these hours can only surcharge the liver, which has long remained quiescent. The best hour for he principal meal is at 7:30 a. m., when the curve of vital expenditure is rising rapidly to its maximum, and remains high for a long time. This meal should furnish not only the energy for the following four or five hours, but also the complement which the liver, emptied by the nocturnal abstinence, should have for storage—from

1,400 to 1,500 calories, a total frequently mentioned. Another well-timed meal would be at 4:30 p. m. (tea, a light meal of 300 to 400 calories). Finally, a third meal, of a heavier sort, 700 to 800 calories, taken at about 8 p. m., should complete alimentation, and would be distributed by the action of the liver in the hours of nocturnal fasting.

In a family where for more than six years meals were timed according to this theory, the results, from the point of view of general health, were most satisfactory.

It should be remembered also that the history of the French words *déjeuner* and *diner* tends to show that the hours for meals have been progressively displaced. The word *diner* is a contraction of the late and medieval Latin *disjunare*, which means to end a fast. It is the same as the English word breakfast. This was, then, originally, the first meal taken on rising. In the twelfth and thirteenth centuries, the general custom was to dine a little after 9 a. m. Those who arose earlier and worked in the open air could not wait until 9 to 10 a. m. without a light meal, and to designate it the word *desjeuner* was coined, carrying always the idea of breaking the fast.

## BERLIN LETTER

Berlin, April 24, 1914.

### Personal

Dr. Dold, privat-docent of hygiene and bacteriology at the Strassburg University, has been given charge of the arrangement of the Institute of Hygiene and Bacteriology at the German Medicine and Engineering School for Chinese at Shanghai. He has received, at the same time, a professorship for hygiene and bacteriology in the same school.

The editorship of the *Journal of Orthopedic Surgery*, published by Enke in Stuttgart, has been accepted by Professor Biesalski, who thus succeeds the late Professor Joachimstal.

### The Reduction of the Birth-Rate Lessened

The first review of the births and infant mortality in the grand duchy of Hesse for the year 1913 shows that the reduction of the birth-rate is lessened and shows also a considerable reduction in infant mortality. In 1913, only 9.2 per cent. of the infants died as contrasted with 15.4 per cent. in 1905 and 15.7 per cent. in 1904.

### Philanthropic Social Service in the Berlin Hospitals

The deputation for the municipal hospitals and the public health has accepted the proposal of a committee for social aid to place women experienced in philanthropic work in all the hospitals to conduct a systematic social service. These women will visit the hospitals on certain days to learn whether the living conditions of any family are affected by the sickness of any of the patients to the extent that social aid is necessary. They will determine also whether special aid of any kind should be given to the patient on leaving the hospital. The securing of a new place to work or the provision of means for care during convalescence will be functions of this service.

### Photoplay Forbidden Reflecting on Physicians

The chief of police of Berlin has lately forbidden the production of a motion-picture which, under the title of "A Woman's Slave," had as its chief feature a violation of duty by a physician. The physician, who is ensnared by a woman, has sacrificed his whole property for her. In order to earn more money he undertakes an unnecessary operation on a baroness who was injured by the collapse of a platform. The operation is unsuccessful and he commits suicide. The film manufacturer sought a removal of the injunction. The superior court, however, decided against the manufacturer, because confidence in the medical profession would be impaired by the presentation of the film. The highest court to which the manufacturer appealed confirmed the decision on the ground that it was for the interest of public policy that the public should have confidence in the medical profession, and that the presentation of this play would have a tendency to undermine this confidence.

### Memorial Services for a German Scientist in Japan

A memorial celebration for Professor Baelz, professor at the Imperial University at Tokyo, from 1875 to 1905, and later professor emeritus, who died in Stuttgart last year, was instituted before the monument erected in the university garden in 1907 by his professional colleagues and former pupils. Hundreds of Japanese physicians and the German ambassador with members of the embassy attended. Aoyama, the dean of the medical faculty, Yamakawa, the director of the university, the German professor Florenz, and the representative of Kobe, Dr. Papallier, made addresses. At the conclusion of the exercises, garlands were placed on the monument from the German colonies at Yokohama and Kobe and from the German East Asiatic Society of Tokyo.

## VIENNA LETTER

Vienna, April 17, 1914.

### Patent Medicines in Austria

A short time ago, the leading men of the medical profession and the representatives of the Union of Apothecaries and Pharmacists of Austria had a joint meeting to consider action against the sale of patent medicines. While the chief objection against the patent medicines and the so-called "specialties" (ready-made medicinal mixtures and substances from different manufacturers) is primarily financial on the part of the apothecaries, the medical profession objects to them because the constituents prescribed are unknown even if such substances are thought fit to be given to the patient. The source of the evil is in the "write-ups" or medical articles written less from a scientific point of view than from that of advertising a given remedy. It has become quite a custom here, and in Germany too, that a medical periodical, desirous of advertisements from pharmaceutical firms, offers to procure the necessary medical papers and articles extolling the different possibilities and uses of the remedy under consideration. The cooperation of the press has been recognized as one of the important points in this campaign, and the names of those medical men who are known to produce the write-ups have been put on a black list and the periodicals have been invited to reject such articles written by them. A special committee was elected at the meeting mentioned above, to devise the best means of dealing with the problem. Some of the suggestions made are that doctors should abstain from prescribing remedies which are advertised in daily non-medical papers; substances with fancy names which state more than a chemical composition, or indicate the disease for which the remedy is to be prescribed should also be avoided, and the apothecaries, who alone in this country are permitted to sell poisonous or heroic remedies, should not have these "specialties" in their stock. The profession, which is suffering under the present unreliability of the chemical industry and its products, eagerly looks forward to the outcome of this agitation.

### Campaign against Tuberculosis

The government and private institutions have recently been paying much attention to the fight against that scourge, tuberculosis, which, in some parts of the empire, is responsible for 15 per cent. of all deaths. As a matter of fact, we have only one institute capable of dealing with tuberculous persons from the poorer classes, while for the wealthiest portion, there are several so-called sanatoriums. The state of Lower Austria has devoted the sum of $200,000 (1,000,000 kronen) to enlarging the existing institute, which now has 265 beds for adults and sixty-four for children. An equal sum will be used every year for ten years for the same purpose in different districts so that within ten years we shall have eleven such institutes in this country. An interesting institution has evolved in connection with the large grant mentioned in my previous letter. As an aid to the endeavors to rear weak children in fresh air, all convalescents and also children already affected by tuberculosis will be taught to be useful in agricultural and horticultural occupations. As the grant also comprises three large rural estates, the institute will possess a large number of cows and other cattle, orchards, meadows and fields. There the children will learn to love the country work and take up this occupation. The present scarcity of rural workers—factory work attracts so many young persons from the country—might be ended, while the constant stay in fresh air will strengthen the body. The plan for erecting open-air and sunlight sanatoriums for children has recently been devised. The government has purchased a large area in the Tyrolese Alps. There, at an altitude of about 5,000 feet, an area constantly free from fog and having a large amount of rain and snow will be converted into a sanatorium for surgical tuberculosis, after the method of Dr. Rollier in Switzerland. The patients are constantly kept in open air, and the direct sunlight as well as the snow-reflected light, exerts its influence on the diseased part by increasing "doses," or intensity and duration. In the hands of Dr. Rollier and his followers, the effects of such treatment, with the exclusion of surgery, have been marvelous.

## Marriages

Bartholomew O'Neill Murphy, M.D., to Miss Frances Veronica Dolan, both of Syracuse, N. Y., April 29.

Willard Robert Vaughan, M.D., Plainwell, Mich., to Miss Agnes M. Steinmayer of La Salle, Ill., May 2.

Alphonse Frank Kemp, M.D., Mankato, Minn., to Miss Irene Schreiner of New Prague, Minn., May 14.

John Steele Sweeney, M.D., Chicago, to Miss Ruth Miller of Findlay, Ohio, in New York City, May 4.

Stanley Aaron Krebs, M.D., Palmerton, Pa., to Miss Mildred Ruppert of Easton, Pa., April 28.

Maj. Powell C. Fauntleroy, M.C., U. S. Army, to Miss Mary Dalrymple at York, Pa., April 18.

Robert Bellinger Casler, M.D., to Miss Carolyn Brooks Johnston, both of Baltimore, April 29.

Penuel Harrod, M.D., to Miss Linnie Robinson, both of Avon, Ill., at Peoria, Ill., April 26.

John Robert Pence, M.D., to Miss Florence Stenerson, both of Minot, N. Dak., April 22.

## Deaths

**Sherman Leach, M.D.** Starling Medical College, Columbus, Ohio, 1887; a Fellow of the American Medical Association; formerly professor of clinical surgery in the Ohio Medical University; surgeon to the Protestant, Mercy and St. Clair hospitals, Columbus; and local surgeon of the Baltimore and Ohio System; died at his home in Columbus, April 26, from pneumonia, aged 49.

**Charles Edwin Sanford, M.D.** Yale University, New Haven, Conn., 1853; a member of the Board of Medical Advisors of the Connecticut State Insane Hospital, Norwich; for more than fifty years a practitioner of Bridgeport, Conn., and once president of the city board of health; died at his home, April 26, from cerebral hemorrhage, aged 83.

**John C. Rosser, M.D.** Jefferson Medical College, 1867; hospital steward in the Confederate service during the Civil War; for twenty years chief surgeon of the Northern Pacific Railroad, with headquarters at Brainerd, Minn.; and later a practitioner of Anoka, Minn.; died at the home of his daughter in Duluth, Minn., April 25, aged 73.

**Abraham Van Meter, M.D.** Philadelphia College of Medicine and Surgery, 1865; a veteran of the Civil War; for two years of Wakenda, Mo., later local surgeon of the Frisco System at Lamar, Mo.; died at the home of his daughter in Joplin, Mo., April 18, from cerebral hemorrhage, after an illness of five years, aged 74.

**William Nisbet, M.D.** Jefferson Medical College, 1867; assistant surgeon of the Tenth Alabama Infantry, C.S.A., and later in charge of hospitals at Liberty and Richmond, Va., during the Civil War; for fifty years a druggist of Jacksonville, Ala.; died at his home, March 9, from senile debility, aged 79.

**Edward Minturn Assenheimer, M.D.** College of Physicians and Surgeons, New York City, 1904; a member of the Medical Society of the State of New York; aged 34; died at the home of his father in New York City, April 30, it is said from the effects of an over-dose of veronal.

**John Young, M.D.** Missouri Medical College, St. Louis, 1876; a member of the Arkansas Medical Society; of Springdale, Ark.; died at his home March 24, aged 56. At a special meeting of the Washington County Medical Society resolutions of affection and regret were adopted.

**William Caldwell, M.D.** Victoria College, Cobourg, Ont., 1874; a specialist on diseases of the eye, ear and nose; for many years physician to the Peterborough County Jail; died at his home in Peterborough, Ont., February 8, aged 72.

**William H. Kerr, M.D.** University of Pennsylvania, Philadelphia, 1867; of Minneapolis; for thirty years a practitioner of Falls City, Neb.; died suddenly in Minneapolis, Minn., May 1, from heart disease, aged 74.

**Thomas J. McFarland, M.D.** New Orleans School of Medicine, 1862; major and brigade surgeon in the Confederate service during the Civil War; died at his home in Port Lavaca, Texas, February 24, aged 77.

**Oliver N. Wolcott, M.D.** Starling Medical College, Columbus, Ohio, 1875; for nine years head of the Sheppard (Ohio) Sanitarium, and later a practitioner of Columbus; died at the home of his father-in-law in Jacksontown, Ohio, April 26, from cerebral hemorrhage, aged 63.

**Sluman C. Crittenden, M.D.** Philadelphia College of Medicine and Surgery, 1856; a surgeon of volunteers during the Civil War; for many years a practitioner of Rochester, Buffalo and Batavia, N. Y.; died at the home of his son in Detroit, Mich., April 28, aged 79.

**Newton Freeman Curtis, M.D.** College of Physicians and Surgeons, New York City, 1874; a member of the Massachusetts Medical Society; for many years a practitioner of White Plains, N. Y.; died at the home of his daughter in Milton, Mass., April 30, aged 64.

**John MacConnell, M.D.** Dublin University School of Medicine, 187—; also a graduate of the Boston University Law School; for many years vital statistician for the Boston Department of Health; died May 1 at the Rest Haven Hospital, Dorchester, Boston, aged 75.

**Charles Henry Brockway, M.D.** College of Physicians and Surgeons, New York City, 1873; a member of the Massachusetts Medical Society; of Worcester, Mass.; died in the Worcester City Hospital, April 17, from cerebral hemorrhage, aged 61.

**Joseph Lanctot, M.D.** Victoria College, Cobourg, Ont., 1869; Ecole de médecine et de chirurgie, Montreal, 1873; who represented the province of Quebec at the French Medical Congress in 1912; died at his home in Montreal, February 20, aged 58.

**Charles Auringer, M.D.** Syracuse (N. Y.) Medical College, Eclectic, 1855; for more than thirty years connected with the Michigan Mutual Life Insurance Company; died at his home in Detroit, Mich., April 15, from senile debility, aged 87.

**Alfred Monroe Armstrong, M.D.** Texas Medical College and Hospital, Galveston, 1870; a member of the State Medical Association of Texas; died at his home in Crawford, Texas, March 8, aged 76.

**Samuel A. Henley,** (license, N. C., 1885); formerly superintendent of health of Randolph County, N. C.; a practitioner for fifty-two years; died at his home in Ashboro, N. C., March 11, aged 82.

**Henry G. Gabel, M.D.** Eclectic Medical Institute, Cincinnati, 1875; for two terms a member of the city council of Aurora, Ill.; died at his home in that city, April 25, from heart disease, aged 72.

**John A. Jones,** (license, Ky., thirty years' practice, 1894); a member of the Kentucky State Medical Association; died at his home in Altona, near Calvert City, Ky., April 11, from pneumonia, aged 74.

**Charles Francis Kiersted, M.D.** Geneva (N. Y.) Medical College, 1872; a Fellow of the American Medical Association; died at his home in Gillett, Pa., April 24, from heart disease, aged 69.

**Alexander Lumsden McLaren, M.D.** Long Island College Hospital, Brooklyn, 1870; Trinity Medical College, Toronto, Ont., 1871; died at his home in Point Edward, Ont., March 18, aged 66.

**Irby Wynne Hamil, M.D.** Louisville (Ky.) Medical College, 1876; a member of the Medical Association of the State of Alabama; died at his home in Goshen, Ala., April 25, aged 60.

**Charles Whitington Keel, M.D.** Medical College of Virginia, Richmond, 1897; a member of the Medical Society of Virginia; died at his home in Ore Bank, Va., April 25, aged 41.

**Samuel Randolph Andis, M.D.** College of Physicians and Surgeons, St. Joseph, Mo., 1880; once coroner of Atchison County, Mo.; died at his home in Tarkio, Mo., April 14, aged 66.

**Walter Scott Hicks, M.D.** University of Buffalo, N. Y., 1851; a member of the Medical Society of the State of New York; died at his home in Bristol, N. Y., March 16, aged 86.

**William A. Sawyer, M.D.** University of Wooster, Ohio, 1872; died at his home in Darlington, Pa., April 22, from organic heart disease, aged 70.

**William Joseph O'Reiley, M.D.** Bellevue Hospital Medical College, 1883; died at his home in Roslindale, Boston, April 22, aged 55.

**Osmore Osmon Roberts, M.D.** Homeopathic Medical College of Pennsylvania, Philadelphia, 1853; for fifty-six years a practitioner of Northampton, Mass.; died at his home in that city, April 26, aged 85.

**Edward Henderson, M.D.** College of Physicians and Surgeons, Keokuk, Ia., 1874; of Pomona, Cal.; died in Los Angeles, Cal., April 14, a few weeks after a surgical operation, aged 63.

**W. S. Posey, M.D.** University of Nashville, Tenn., 1852; of Sulphur Bluff, Texas; died at the home of his daughter in Mount Pleasant, Texas, March 27, from senile debility, aged 84.

**Daniel McFadyen, M.D.** Detroit College of Medicine, 1904; a Fellow of the American Medical Association; died at his home in Detroit, April 22, from postdiphtheritic paralysis, aged 47.

**James Y. D. Madeira, M.D.** Jefferson Medical College, 1883; a Fellow of the American Medical Association; died at his home in Reading, Pa., April 19, from pneumonia, aged 57.

**Francis Leverett Gerald, M.D.** Eclectic Medical Institute, Cincinnati, 1873; a member of the New Hampshire Medical Society; died at his home in Warren, N. H., April 5, aged 75.

**Paul Ehrhart, M.D.** New York University, New York City, 1878; a member of the Medical Society of the State of New York; died at his home in New York City, April 30, aged 58.

**Samuel C. Richardson, M.D.** Physio-Medical College, Cincinnati, 1877; formerly of Terre Haute, Ind.; died at his home in Indianapolis, February 9, from nephritis, aged 91.

**Daniel Egan, M.D.** Rush Medical College, 1881; a Fellow of the American Medical Association; died at his home in Chicago, May 5, from disease of the stomach, aged 55.

**Emmett Warren Doolittle, M.D.** University of Iowa, Iowa City, 1875; formerly of Garden Grove, Ia., died at his home in Cainesville, Mo., April 21, from pneumonia, aged 62.

**R. Houghton Sigmond, M.D.** University of Virginia, Charlottesville, 1901; in charge of a hospital at Durango, Mex.; died in that city, about April 15, from uremia, aged 35.

**Alexander Edwin Colerick, M.D.** Eclectic Medical College of Pennsylvania, Philadelphia, 1865; died at his home in Pacific Grove, Cal., March 12, from paresis, aged 75.

**Bruce S. Louthan, M.D.** State University of Iowa, Iowa City, 1873; a member of the Iowa State Medical Society; died at his home in Sutherland, Iowa, April 20, aged 66.

**George S. Wyckoff, M.D.** University of Buffalo, N. Y., 1877; formerly of Leechburg, Pa.; died in Pittsburgh, Pa., February 10, from organic heart disease, aged 63.

**Louis Peale Lampen, M.D.** Jefferson Medical College, 1883; a Fellow of the American Medical Association; died at his home in Philadelphia, May 1, aged 54.

**Walter Foulgham McMullen** (license, Texas, years of practice, 1907), of Rockport, Tex.; died in Beeville, Tex., April 14, from cerebral hemorrhage, aged 58.

**Jacob D. Mater, M.D.** University of Virginia, Charlottesville, 1873; a veteran of the Civil War; died at his home in Bridgeton, Ind., April 16, aged 67.

**Percie Holland, M.D.** University of Tennessee, Nashville, 1910; died at the home of his parents in Springfield, Tenn., April 19, from tuberculosis, aged 28.

**Frederick B. Righter, M.D.** Hahnemann Medical College, Chicago, 1870; a veteran of the Civil War; died at his home in Lincoln, Neb., April 18, aged 78.

**Joseph M. Sanderson, M.D.** University of Louisville, Ky., 1886; died at his home in Speegleville, Tex., April 15, from heart disease, aged 55.

**Thomas J. Harvey, M.D.** Missouri Medical College, St. Louis, 1876; died at his home in St. Louis, April 22, from cerebral hemorrhage.

**Isaac Windle, M.D.** Jefferson Medical College, 1861; for thirty-two years a practitioner of Mitchell, S.D.; died about April 22, aged 88.

**Fletcher Stillman Smith, M.D.** University of Michigan, Ann Arbor, 1881; died at his home in Saginaw, Mich., April 20, aged 59.

**James M. Bond, M.D.** California Medical College, San Francisco, 1895; died at his home in Healdsburg, Cal., March 23.

**E. A. Smith** (license, Oklahoma, act of 1908), died at his home in Mountain View, March 22.

# *The Propaganda for Reform*

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

## BROMIDIA

### Report of the Council on Pharmacy and Chemistry

The following report was submitted to the Council by a member of its Committee on Therapeutics, with the recommendation that publication be authorized. This recommendation was adopted.

W. A. Puckner, Secretary.

Bromidia at once suggests bromids; yet Bromidia is essentially a chloral rather than a bromide preparation. This nostrum illustrates the need of the provision in the Council's Rule 8 under which recognition is refused pharmaceutical mixtures whose names do not indicate their most potent ingredients. While the chloral content of Bromidia has been given considerable publicity, yet the preparation is used both by physicians and by the public without due consideration of its potent ingredient. This fact is attested not only by the fatal results which have followed its use but also by the many reports of habit formation. As long ago as in 1887 a fatal case of poisoning was reported[1] to the medical society of the District of Columbia due to an overdose taken by a Bromidia addict. The physician who reported this case also gave his experience with another patient who had the Bromidia habit. In the discussion of the paper a number of cases were reported by others present in which Bromidia had been taken without a physician's advice and with more or less grave symptoms of poisoning.

In the report of a death of one who had been a slave to Bromidia it was said:[2] "When the body was found, there were eleven one-ounce Bromidia bottles about the room or on his person. Nine were entirely empty and the other two were about half full. None of these bottles indicated that they had been purchased on a physician's prescription, only the druggist's label marked 'Bromidia' being on them."

Dr. Horatio C. Wood, Jr., gave[3] a striking illustration of how preparations like Bromidia come to be used even by physicians without consideration of their constituents:

> "Within an hour after his father, a Brooklyn physician, had given him a dose of bromid, H.G.P., a prodigal son, died yesterday at his father's home in Brooklyn. Two years ago, when he appeared to have sown his wild oats, the father made him superintendent of his country place, near Grants Mills, Delaware County. A week ago the son left his place, and at 1 o'clock yesterday morning appeared at his father's Brooklyn home. He was nervous, and at 9 a. m. begged for a sedative.
>
> "'I prescribed the usual quantity of bromidia,' the young man's father told a reporter. 'He was weak and had suffered from weak heart and kidney trouble for some time.'
>
> "An hour later the father found the son dying and administered restoratives, but to no avail."

A circular, "The Advantages of Bromidia," makes it plain how physicians come to use a preparation like Bromidia without consideration of its potent constituent. In this circular the presence of chloral is at first frankly admitted, then it is suggested that in the combination the evil effects of chloral are completely eliminated and in the end the impression is left that Bromidia is practically innocuous. Thus at the beginning while arguing that Bromidia is better than extemporaneous preparations the chloral content is plainly acknowledged:

> "In the untoward effects so frequently attending the use of extemporaneously prepared mixtures of chloral and the bromides, may be found the reason for BROMIDIA'S preference when the need for a hypnotic agent arises. Were it not for the well known disadvantages of these drugs which become still more marked with their continued use, there could be no special need for such a preparation as BROMIDIA (Battle), for the therapeutic powers of chloral and the bromides are among the most positive facts in medicine."

Again:

> "It was to meet the growing professional demand for a combination of chloral and the bromides with their evil effects eliminated, that led to the manufacture of BROMIDIA (Battle)."

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1. The Journal A. M. A., July 9, 1887, p. 55.
2. The Journal A. M. A., April 21, 1906, p. 1220.
3. The Journal A. M. A., April 21, 1906, p. 1220.

Then, suggesting the indiscriminate use of Bromidia—as an entity as Dr. Wood suggests—the claim is made that:

> ". . . its constituents have been chosen with a view of enabling Bromidia to meet every requirement for an agent of its class."
>
> "Owing to the exceptional purity of its component parts and its freedom from untoward effects when continued over long periods, this product will be found of the highest utility in epilepsy."
>
> ". . . its action is that of chloral and the bromides minus their evil effects."

Finally Bromidia becomes a simple bromid preparation. Thus an advertisement reads:

> "Bromidia's (Battle) Marked Sedative and Antispasmodic Qualities eminently fit it for the treatment of Maniacal Excitement, Epilepsy, Spasmodic Asthma, Convulsive Seizures of Reflex Origin, Sexual Neuroses, and other disorders attendant upon nervous irritability.
>
> "Through its exhibition, the fullest therapeutic power of the bromides may be secured with a minimum of their evil effects; a feature of the greatest service when the necessity for continued treatment becomes necessary."

In addition to the general invitation to use Bromidia in epilepsy and various nervous disorders, a circular also recommends its use in typhoid, a recommendation, which, if followed, may turn the scale in favor of a fatal result. The circular states:

> "As a soothing agent in the extreme restlessness and irritability of typhoid fever and other infectious diseases, BROMIDIA (Battle) is a therapeutic weapon of definite service. Relief of the headache of typhoid may also be secured through the use of BROMIDIA (Battle). By means of its administration for the above purposes, the patient's strength is conserved and as a result he is much better prepared to stand the force of the infection."

Particularly vicious is the recommendation that it be given to children. Thus, in a pamphlet entitled "Effective Drugs Effectively Combined":

> "Another point of advantage to be found in bromidia is the ease with which it is borne by children. Owing to this tolerance, it is of distinct service in a considerable list of disorders of childhood. Thus, of course, employed with care and an understanding of its potency, bromidia has a field of usefulness in chorea, laryngismus stridulus, and whooping-cough. In other nervous disorders of childhood—those attending acute infections, for instance—bromidia is a definitely indicated therapeutic aid, owing to the soothing influence exerted by even a moderate dose and the absence of untoward effects. More specifically, the correcting influence of bromidia in the night-terrors of children may be mentioned."

Formerly advertisements asserted that each fluidram of Bromidia contained:

| | |
|---|---|
| "Chloral hydrate | 15 grains |
| "Potassium bromid | 15 grains |
| "Extract of Cannabis indica | ⅛ grain |
| "Extract of henbane | ⅛ grain" |

This formula also appears on the label of a sample package sent through the mails during 1914. A recent circular contains a somewhat different formula. Instead of "1/8 gr. each of gen. Imp. Ext. Cannabis Ind. and Hyoscyam." as was formerly claimed, each fluidram of Bromidia is now said, not to "contain" but to "represent," not the extracts but the far less potent drugs "Cannabis indica 1/8 grain, Hyoscyamus 1/8 grain," thus:

| | |
|---|---|
| "Chloral hydrate | 15 grains |
| "Pot. brom. | 15 grains |
| "Cannabis indica | ⅛ grain |
| "Hyoscyamus | ⅛ grain" |

Furnishing still greater variety, the labels on a recently purchased bottle of Bromidia, where under the Food and Drugs Act the presence of narcotic drugs must be declared, read:

> "Alcohol 10 per cent., Chloral Hydrate, 91 grs. per ounce. Cannabis indica indeterminate in finished product."
>
> "In the manufacture of BROMIDIA to each drachm of fluid used are added 15 grains of pure chloral hydrate and purified brom. pot., and ⅛ grain each of gen. imp. ext. cannabis ind. and hyosciam."

These various statements as to the composition of Bromidia leave one very much "in the air." As chloral and potassium bromid are easily determined and since lying on the labels of widely exploited proprietaries has become somewhat risky recently, it is probable that the statements on the trade package are to be depended on and that each fluidram of Bromidia contains something like 12 grains each of chloral and potassium bromid and not 15 grains as the medical profession has been and is being told.

Pharmacists who have attempted to put up a nonproprietary preparation similar to or, more correctly, having the alleged composition of Bromidia have found it practically impossible to do so. The reason is that extract of cannabis indica is almost insoluble in a menstruum such as that found in Bromidia. The National Formulary, first edition, listed Mistura Chlorali et Potassii Bromidi Composita of which it was said: "Each fluidram contains 15 grains each of Chloral and of Bromid of Potassium, and 1/8 grain each of Extract of Indian Cannabis and Extract of Hyoscyamus." In this the pharmacists attempted to incorporate the cannabis indica by using the tincture of the drug and suspending it by the addition of tincture of soap bark. In the present edition of the National Formulary, the preparation is made by triturating the extract of cannabis indica with pumice stone and then filtering the finished product. This gives an "elegant" preparation—but one from which the cannabis indica is filtered out! A sad commentary on the National Formulary. It should not be supposed, however, that the manufacturers of Bromidia have solved the problem that has baffled the pharmacists; not at all. Bromidia probably contains no more cannabis indica than does its National Formulary prototype. The statement on the present trade packages, that the amount of cannabis indica in Bromidia is "indeterminate," is but a tardy acknowledgment of the fact that the stuff has not, and never had, the amount of cannabis indica claimed for it for so many years.

The "indications" named on the Bromidia labels are, in common with nostrums of this type, but suggestions for self-drugging. They will appeal to the layman who has purchased, either by prescription or otherwise, an "original package" of Bromidia and who may imagine he suffers from "nervousness," "sleeplessness," "headache" or "neuralgia."

But while the manufacturers in their advertising matter have on the whole not disguised the presence of chloral so much as they have attempted to make it appear that the chloral has been robbed of its dangers—for all hypnotics if used thoughtlessly are dangerous—after all the name has created the false impression that Bromidia is a bromid preparation. It is because of this false impression carried by its name, that Bromidia came to be used indiscriminately by the profession and in the course of time still more indiscriminately and recklessly by the public. Bromidia is a vicious chloral preparation masquerading under a misleading name. That physicians have been impressed by the claims of its harmlessness and by the mystery connected with the formula is not a credit to the intelligence of our profession. There is no doubt but that physicians are responsible for the use and abuse of this chloral preparation by the public.

There is no scientific or rational excuse for a ready-made preparation of this sort. When chloral or a bromid is indicated the proper dose of each of these, if they are to be combined, should be determined for each patient. Potassium bromid and chloral hydrate both are readily soluble in water, syrup or elixirs and it is a simple matter to prescribe the required dose of chloral and of bromid dissolved in some aromatic water like cinnamon-water (Aqua Cinnamomi), in some syrup like syrup of orange (Syrupus Aurantii) or in an elixir like the aromatic elixir (Elixir Aromaticum) or adjuvant elixir (Exixir Adjuvans). Prescribed thus the physician is alive, alike to the dangers and the limitations of the drugs; prescribed under a misleading proprietary name, the physician endangers his patient, stultifies his profession and tends to perpetuate the great American fraud.

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Editor's Note.—A list of some of the medical journals that advertise Bromidia:

*Texas Medical News*
*Nashville Journal of Medicine & Surgery*
*Medical Brief*
*Annals of Surgery*
*Charlotte Medical Journal*
*Medical Sentinel*
*Memphis Medical Monthly*
*Laryngoscope*
*Medical World*
*Medical Review of Reviews*
*Louisville Monthly Journal*
*Indianapolis Medical Journal*
*Monthly Cyclopedia & Medical Bulletin*
*Journal of Nervous & Mental Diseases*
*Maryland Medical Journal*
*Merck's Archives*
*Iowa Medical Journal*
*Medical Standard*
*Southern Practitioner*
*New Orleans Medical & Surgical Journal*
*Therapeutic Gazette*
*Medical Herald*
*Medical Times*
*Texas Medical Journal*
*Wisconsin Medical Recorder*
*International Journal of Surgery*
*Vermont Medical Monthly*
*Atlanta Journal-Record of Medicine*
*St. Paul Medical Journal*
*Hospital Bulletin of the University of Maryland*
*Denver Medical Times*
*Buffalo Medical Journal*
*Medical Review*
*Ellingwood's Therapeutist*
*Eclectic Medical Journal*
*Massachusetts Medical Journal*

## CONVICTIONS UNDER THE FOOD AND DRUGS ACT

### MONTE CHRISTO RUM AND QUININ FOR THE HAIR

The Monte Christo Cosmetic Company of New York City, which was a trade style used by one Albert Edelstein, shipped in interstate commerce a product labeled "Monte Christo Rum and Quinin for the Hair." The claims for the preparation were:

> "Cools and invigorates the Scalp. Prevents the hair from falling out. Removes and prevents dandruff, imparting to the hair a delightful perfume."

A sample of the product was analyzed by the Bureau of Chemistry, and the chemists reported the following results:

| | | |
|---|---|---|
| Ethyl alcohol | 18.5 | per cent. |
| Wood alcohol | 42.0 | per cent. |
| Quinin (grams per 100 c.c.) | 0.28 | |

This preparation was declared adulterated in that its purity and strength were inferior to the professed standard under which it was sold, in that wood alcohol had been substituted for part of the rum. It was declared misbranded because the label was false and misleading and likely to deceive the purchaser into the belief that the product was composed of rum and quinin, when as a matter of fact it was composed of rum, quinin and wood alcohol. It was further declared misbranded in that it bore a serial number that did not belong to the Monte Christo Cosmetic Company; and in that the label failed to bear a declaration of the quantity of alcohol the preparation contained. Albert Edelstein pleaded guilty and was fined $50.—[*Notice of Judgment No. 2321.*]

### PEPSIN MAGEN BITTERS

Bettman-Johnson Company, a Cincinnati corporation, shipped from Ohio to Oregon a quantity of a product labeled "Pepsin Magen Bitters." The claims made for the stuff were to the effect that it "ranks among the best means for the preservation of activity of the digestive organs." It was further stated that "weakness of the stomach is mainly due to the scanty secretion of pepsin," and that in such cases the physician always prescribed pepsin. "Pepsin Magen Bitters" should be used because:

> "A supply of Pepsin, as contained in these celebrated Bitters, in connection with some wholesome and strengthening bitter roots and herbs, will supply that deficiency and bring the stomach back to a normal condition."

When analyzed by the federal chemists, "Pepsin Magen Bitters" was found to contain 28.44 per cent. alcohol, 5.2 per cent. sugar, and less than 0.0001 grams of pepsin in each cubic centimeter of the preparation. "Pepsin Magen Bitters" were declared misbranded because the label conveyed the impression that the stuff contained a substantial amount of pepsin, when as a matter of fact, it contained only an infinitesimal quantity of pepsin, and it was further declared misbranded as the percentage of alcohol was not stated on the label. The Bettman-Johnson Company entered a plea of *nolo contendere* and was fined $25 and costs of $15.85.—[*Notice of Judgment No. 2222.*]

### BAVARIAN MALT EXTRACT

A quantity of so-called Bavarian Malt Extract was shipped by the Kansas City Breweries Company from Kansas City, Missouri, to Nebraska. In addition to the name, "Bavarian Malt Extract," the label contained these claims:

> "An unequalled health giving medical tonic."
>
> "An excellent recuperant for weak physical energy, with the nourishing qualities of a pure extract of Malt and Hops."

Analysis by the government chemists showed that the preparation was misbranded, since instead of being a malt extract as claimed, it was essentially beer, containing 5.8 per cent. alcohol. The government further declared the stuff misbranded in that it led the purchaser to believe he was buying a foreign-made product, when as a matter of fact "Bavarian Malt Extract" was made at Kansas City, Missouri. The company pleaded guilty to both allegations and was fined $100 and costs.—[*Notice of Judgment No. 2258.*]

# *Correspondence*

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## Testimonial to Lucas-Championnière

*To the Editor:*—I beg to call the attention of my fellow surgeons to a movement which has just been inaugurated for the erection of a monument to the late Prof. Just Lucas-Championnière. There is a large committee consisting of representative surgeons, such as Professors Delagenière, Delorme, Depage, Dollinger, von Eiselsberg, Ceccherelli, Chantemesse, Garrè, Gibson, Godlee, Hartmann, Robert Jones, Körte, Macewen, Michon, Labbé, Perier, Reverdin and many others from America and practically every country in Europe.

Championnière's important contributions to surgery are too well known for it to be necessary to recount them. He was more than friendly to all Americans who were brought into contact with him. I am sure that it will be a great pleasure to many American surgeons to contribute toward this international testimonial.

Contributions may be sent to M. Georges Steinheil, 2, rue Casimir-Delavigne, Paris, or if any of the contributors prefer, I shall be very glad to receive and transmit any such contributions.

W. W. Keen, M.D., 1729 Chestnut Street, Philadelphia.

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## Presence in Urine of Dialyzable Products Reacting to Ninhydrin

*To the Editor.*—In The Journal, April 4, 1914, p. 1084, Jamison reports on experiments with urine to check up the article by Warfield (The Journal, Feb. 7, 1914, p. 436). Jamison's reports are at variance with a large number of tests which I made with urine, as the following facts will show:

Urines of various acidities were tested directly with ninhydrin. Acidities were determined by titration with tenth-normal sodium hydroxid solution: Four specimens of urine of acidity 33, 56, 91 and 123 degrees were positive with ninhydrin. These acidities represent a fair range. It is not frequently that a urine with so high an acidity as 123 degrees is found.

Jamison says that a urine which gives even a strongly positive ninhydrin reaction loses its power to react if made strongly acid by the addition of acetic acid, and that the reaction will not reappear when the urine is exactly neutralized by the addition of sodium hydroxid. To determine what might be the disturbing element, provided his statement is true, the following tests were made:

Urine plus one-third its volume of glacial acetic acid, plus ninhydrin, no reaction.

Urine plus sodium acetate, plus ninhydrin, typical reaction.

Urine plus sodium hydroxid plus ninhydrin, yellowish color.

Urine plus acetic acid, then neutralized exactly with sodium hydroxid, plus ninhydrin, original reaction.

Urine plus acetic acid, plus sodium hydroxid to very faint alkaline reaction, plus ninhydrin, no reaction.

Urine plus acetic acid, plus sodium hydroxid until just short of neutral, plus ninhydrin, typical reaction.

Urine plus 0.5 per cent. acetic acid, plus ninhydrin, typical reaction.

These experiments were repeated on a number of urines and were also duplicated with solutions of pure glycocoll. The results were always the same as above.

From the foregoing it is evident that a large excess of acetic acid (like hydrochloric, nitric, etc.), will interfere with the production of a color reaction. It is also evident that the reason Jamison failed to restore the ninhydrin reaction after acidifying was that he did not neutralize exactly, but used too much alkali.

It is well known that acids and alkalies dialyze readily. It is hard to conceive that an acid solution on dialysis would give a neutral dialysate. Experiments with urine, with diammonium hydrogen phosphate, with disodium hydrogen phosphate and with monopotassium hydrogen phosphate show the reaction of the dialysate to be always the same as the reaction of the fluid in the dialyzer. From various causes the reaction of the urine in the dialyzer may change during the time allowed to dialyze, but we always find the reaction on both sides of the dialyzer the same.

I do not see wherein Jamison is justified in drawing the conclusion that after dialyzing the urine of *pregnant women*, the dialysate gives a positive reaction to ninhydrin. A negative reaction may also be found, for the same factors which interfere with the reaction in certain non-pregnant urines would also be found occasionally here.

One point which I wish to emphasize is that all urines contain some amino-acids and will give a ninhydrin reaction unless some interfering substances are found. It must not, however, be thought that when we get a blue color with ninhydrin, the presence of amino groups in alpha position to carboxyl is demonstrated. A large number of substances will give color reactions with ninhydrin; for instance, ammonia, ammonium carbonate, diammonium hydrogen phosphate, ammonium formate, ammonium acetate, ammonium butyrate, ammonium oxalate, ammonium succinate, etc. Such substances, however, as ammonium chlorid, and ammonium nitrate do not give a reaction.

Charles E. M. Fischer, M.D., Columbus, Ohio.

[This letter was referred to Dr. Jamison who replied:]

*To the Editor:*—Dr. Fischer entirely avoids the main issue of my recent article, which endeavored to show that the presence of dialyzable products in the urine reacting to ninhydrin is not diagnostic of pregnancy. He has attacked some minor points, however, so I will endeavor to answer him.

I stated that when a urine was strongly acid (to litmus) the ninhydrin reaction was often negative, and this is certainly true in my experience; I have seen an occasional exception when there was a large amount of amino-acids present. This is also the case when working with blood; in using the Pierce-Williams technic, great care must be taken not to add too much acetic acid, for the reaction will often be inhibited though the blood is known to give a positive reaction. Dr. Fischer appears to be mistaken on another point, as illustrated by the following: Suppose that one gets a positive reaction to ninhydrin in a specimen of urine prior to dialyzation; now to the same tube showing the characteristic blue color of the ninhydrin reaction, add acetic acid in moderately large amounts and it will be found that the blue color will soon fade; the fluid in the test-tube may now be exactly neutralized, but the blue color will not reappear. I am confident that Dr. Fischer did not follow this procedure. Further, suppose we test a specimen of urine from a known pregnant woman; this urine is found to be strongly acid to litmus and negative to ninhydrin, and though we now exactly neutralize this urine it will still remain negative, but if we dialyze out the amino-acids, the dialysate will give a positive reaction to ninhydrin. In such a case we are dealing with two factors which may inhibit the reaction, namely, the acidity and some unknown inhibiting substance. The reason that the reaction will appear in the dialysate is, probably, that the amino-acids will dialyze through, but not the inhibiting substance. The reason that the dialysate is nearly always neutral to litmus is that the acid substances are so largely diluted by the water on the outside of the membrane (it is to be remembered that only 2 c.c. of urine are used, and 10 c.c. of water), that their reaction is not perceptible by so coarse a means as litmus, though I have no doubt that acidity can be demonstrated by more delicate means. If a urine gives a strong reaction to ninhydrin and then is made so acid that the reaction disappears, and then again the acidity is exactly neutralized, of course the reaction can be obtained in another specimen of this acidified-alkalinized urine.

This seems to be Dr. Fischer's main ground for criticism, and I admit that there may have been some ambiguity in the wording of my original paper on this particular point; at any rate, Dr. Fischer mistook the sense of my article, as set forth above.

After dialyzing the urine of pregnant women, I have never found one to give a negative reaction to ninhydrin; and if Dr. Fischer has found this not to be the case he should have stated it specifically. From the examinations that I have made I see no reason for altering this conclusion. I have found the reaction negative in the dialysates from the urine of non-pregnant women and also of men.

Theoretically it is true that all urines contain traces of amino-acids, but, in my opinion, drawn from experiments as set forth in my original paper, *not all urines will give a positive reaction to ninhydrin*, probably because the amount normally present is infinitesimal.

Chaillé Jamison, M.D., New Orleans.

### Painless Parturition

*To the Editor:*—The suggestion of Dr. C. D. Daniels (The Journal, May 2, 1914, p. 1420), concerning the use of nitrous oxid in parturition, is based on faulty technic. When nitrous oxid is administered with sufficient oxygen to maintain normal oxygenation of the blood, there is no increase in respiratory difficulty with the infant. In nitrous oxid administration, proper oxygenation is relatively as essential an element of safety as is asepsis in surgical technic, and in this day it ought not to be considered necessary to reiterate continually such essential requisites.

Raymond C. Coburn, M. D., New York.

## *Queries and Minor Notes*

### ABDERHALDEN'S SERODIAGNOSIS IN PSYCHIATRY

*To the Editor:*—Please describe the technic for preparing nervous tissue for use in Abderhalden's serodiagnosis in nervous affections.

W. S. Lorenz, M.D., Milledgeville, Ga.

Answer.—The theoretic basis of this test is the assumption that a protective ferment is formed in the organism against cells or protein which have entered the blood from a degenerated organ. In the test for pregnancy a ferment formed by the maternal system against placental tissue is tested for on the supposition that cells from the placenta find their way into the blood of the mother and excite the formation of a specific ferment capable of decomposing them. Similarly it is supposed that in dementia praecox the brain cortex becomes degenerated and furnishes cells or substances to the blood which act as foreign bodies. The presence of these substances excites the formation of a ferment capable of decomposing the proteins of the human brain. In a similar manner the tissues of the genital glands, which are more or less affected in dementia praecox, are subject to digestion by a similar ferment. These ferments are so specific that the ferment of one sex will not affect the glands of another sex, that is, the serum of a woman will not digest testicular tissue nor will that of a man digest ovarian tissue. Experiment has shown that the organs of animals cannot be used in this test. The organs to be used should be taken from cadavers of persons who were not cachectic and the necropsy should have been made within a few hours (from six to twenty-four) after death. The organs should be taken from the cadaver of a patient who has not died after a long agony and has not suffered from an infection or high fever shortly before death. The organs should be removed with aseptic precautions. Organs containing much fat are not well suited to the test. If the tissue contains considerable fat, it should be removed in a Soxhlet apparatus. The material should be cut into pieces of moderate size (size of a bean) and washed repeatedly until the wash-water gives no reaction with ninhydrin. The washed material should be cut into fine pieces and tested again after thorough washing.

The pieces should then be boiled and tested, and if free from substances reacting with ninhydrin, they should be preserved in the water in which they have been boiled between a layer of chloroform and a layer of toluene.

The incubation and testing are performed in the same manner as when testing for the serodiagnosis of pregnancy. The greatest care must be taken to see that the dialyzing thimbles are permeable and entirely free from any substance which can give the ninhydrin reaction. Especially they should be entirely free from any adhering tissue used in previous tests. A control test should be made with a piece of the tissue and normal serum, and also a test should be made of the serum alone.

The following articles dealing with this subject may be referred to:

Fauser, A.: Einige Untersuchungsergebnisse und klinische Ausblicke auf Grund der Abderhaldenschen Anschauungen und Methodik, Deutsch. med. Wchnschr., Dec. 26, 1912, p. 2446.

Fauser, A.: Weitere Untersuchungen (3. Liste) auf Grund des Abderhaldenschen Dialysierverfahrens, Deutsch. med. Wchnschr., Feb. 13, 1913, p. 304.

Fauser, A.: Zur Frage des Vorhandenseins spezifischer Schutzfermente in Serum von Geisteskranken, München. med. Wchnschr., March 18, 1913, p. 584.

Wegener: Serodiagnostik nach Abderhalden in der Psychiatrie, München. med. Wchnschr., June 3, 1913, p. 1197.

Schiff, Erwin: Ist das Dialysierverfahren Abderhaldens differentialdiagnostisch verwertbar? München. med. Wchnschr., June 3, 1913, p. 1197.

Fauser, A.: Die Serologie in der Psychiatrie, München. med. Wchnschr., Sept. 9, 1913, p. 1984.

Bundschuh, Rudolph, and Roemer, Hans: Ueber das Abderhaldensche Dialysierverfahren in der Psychiatrie, Deutsch. med. Wchnschr., Oct. 16, 1913, p. 2029.

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## DURATION OF PREGNANCY

*To the Editor:*—A woman aged 23, unmarried, said that she had had sexual connection July 26, 1913. She was confined March 6, 1914. Child full term and healthy. Time 224 days. Could a full-term child be born in that time? We are taught that from 270 to 290 days is the normal time, but this falls 46 days short of 270 days.

J. E. C., M.D., Missouri.

Answer.—The query involves two questions. 1. What is the shortest recorded period from coitus until the birth of an apparently fully developed child? 2. To what extent is it possible to determine the length of intra-uterine life from the appearance of the child at birth?

J. W. Williams (Obstetrics, p. 202) states that Ahlfeld analyzed 425 cases in which the date of coitus was supposed to be known and found the average duration of pregnancy to be 269.91 days, but individual cases in the series varied between 231 and 329 days. According to Peterson and Haines (Legal Medicine and Toxicology, i, 66) Reid has collected the histories of forty cases of pregnancy in women in whom impregnation was the result of a single intercourse, the date of which was accurately known. Of these cases five fell within the thirty-eighth week, from the 260th to the 266th day. They also cite the investigation of Montgomery, who collected the histories of fifty-six cases of pregnancy in which the date of fruitful intercourse was known, of which one case fell in the thirty-fifth week, between the 239th and 245th days. Peterson and Haines further say: "There is therefore no absolute figure that may be stated as the positive duration of pregnancy in the human female. In some women eight calendar months is the full period to which they can carry their young, while others invariably go well beyond the average of 280 days. Thus, while the average may be as stated, normal gestation may last but 240 days, or be extended to 300 days or longer."

In Austria the law recognizes the legitimacy of the child born within from 240 to 307 days of the death of the father. Schroeder and also Winckel admit 240 days as the lower limit for the duration of pregnancy (Witthaus and Becker, ii, 514, 515).

From casual observation it is hardly possible to determine whether an infant at birth has had seven or nine months of intra-uterine life. Even an expert observer would not be safe in stating that an infant apparently fully developed had had more than eight months of intra-uterine existence. J. Clifton Edgar, in Witthaus and Becker's "Medical Jurisprudence, Forensic Medicine and Toxicology," ii, 526, quotes Tidy as follows: "It is manifest that the medical jurist would scarcely be justified in pronouncing a positive opinion that a seven months' child might not be as well developed as an eight or nine months' child under ordinary circumstances."

# Medical Education and State Boards of Registration

## COMING EXAMINATIONS

California: Los Ange'es, June 16. Sec., Dr. C. B. Pinkham, 135 Stockton St., San Francisco.

Delaware: Dover and Wilmington, June 16-18. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

Florida: Palatka, June 17-18. Sec., Dr. E. W. Warren, Palatka.

Georgia: Atlanta and Augusta, June 3. Sec., Dr. C. T. Nolan, Marietta.

Iowa: Iowa City, June 11-13. Sec., Dr. Guilford H. Sumner, State House, Des Moines.

Kansas: Kansas City, June 9-12. Sec., Dr. H. A. Dykes, Lebanon.

Kentucky: Louisville, June 3-5. Sec., Dr. A. T. McCormack, Bowling Green.

Louisiana: New Orleans, June 4-6. Sec., Dr. E. L. Leckert, Macheca Bldg., New Orleans.

Maryland: Baltimore, June 15. Regular Board: Sec., Dr. J. McP. Scott, Hagerstown. Homeopathic: Baltimore, June 15. Sec., Dr. O. N. Duvall, 1817 N. Fulton Ave., Baltimore.

Michigan: Ann Arbor, June 9. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

Mississippi: Jackson, June 16-17. Sec., Dr. E. H. Galloway, Jackson.

Missouri: St. Louis, June 15-17. Sec., Dr. J. A. B. Adcock, Jefferson City.

Nebraska: Lincoln, May 27. Sec., Dr. H. B. Cummins, Seward.

New Jersey: Trenton, June 15-16. Sec., Dr. H. G. Norton, 429 E. State St., Trenton.

New York: May 19-22. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

New York: June 23-26. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

North Carolina: Raleigh, June 9. Sec., Dr. Benj. K. Hays, Oxford.

Ohio: Columbus, June 2-5. Sec., Dr. George H. Matson, State House, Columbus.

Pennsylvania: Philadelphia, June 1-3. Sec., Mr. Nathan C. Schaeffer, Harrisburg.

South Carolina: Columbia, June 9. Sec., Dr. A. Earle Boozer, 1802 Hampton Ave., Columbia.

Texas: Austin, June 23-25. Sec., Dr. W. L. Crosthwaite, Waco.

Virginia: Richmond, June 23-26. Sec., Dr. Herbert Old, Nofolk.

### Texas November Report

Dr. W. L. Crosthwaite, secretary of the Texas State Board of Medical Examiners, reports the written and practical examination held at Houston, Nov. 11-13, 1913. The number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 45, including 3 osteopaths, of whom 42 passed, including 3 osteopaths; 2 failed and one candidate did not complete the examination. The following colleges were represented:

PASSED

| College | Year Grad. | Per Cent. |
|---|---|---|
| University of Alabama | (1904) | 76.6 |
| George Washington University | (1912) | 87.5 |
| Howard University | (1913) | 84.6 |
| University of Illinois | (1913)* | |
| Hospital College of Medicine, Louisville | (1904) | 78.4 |
| University of Kentucky | (1910) | 86.7 |
| Tulane University | (1912)<br>(1913) | 84.7, 87.1<br>85, 85.5, 87.7, 89.5 |
| Maryland Medical College | (1910) | 78.8 |
| Harvard Medical School | (1899) | 82 |
| Kansas City Hahnemann Medical College | (1913) | 77 |
| University of Pennsylvania | (1895)<br>(1907)<br>(1911) | 84.1<br>87.3<br>87.7, 89.7 |
| Meharry Medical College | (1912) | 75, 75.5 |
| Memphis Hospital Medical College | (1901)<br>(1911)<br>(1913) | 84.7<br>82<br>77.6, 80.6, 82. |
| University of Tennessee | (1911) | 79 |
| Vanderbilt University | (1912) | 82.3 |
| Texas Christian University | (1913) | 82, 83.1, 86.1, *89.7 |
| University of Texas | (1913) | 83.9, 85 |
| Medical College of Virginia | (1909) | 82.1 |
| University College of Medicine, Richmond | (1912) | 86.4 |
| University of Toronto | (1891) | 85.4 |
| University of Berne, Switzerland | (1905) | 87.8 |

FAILED

| College | Year Grad. |
|---|---|
| Hospital Medical College, Eclectic, Atlanta | (1910)* |
| Meharry Medical College | (1910)* |
| Undergraduate | † |

* No grade given.

† Did not complete examination.

### Colleges Given Higher Rating

In recognition of a definite reorganization and of marked improvements made in the Southern Methodist University Medical Department of Dallas, Tex., and the Texas Christian University Medical Department of Fort Worth, Tex., the ratings of these colleges have been raised to Class B by the Council on Medical Education.

## *Book Notices*

New and Nonofficial Remedies. *Containing Descriptions of the Articles Which Have Been Accepted by the Council on Pharmacy and Chemistry of the American Medical Association Prior to Jan. 1, 1914. Cloth. Price, 50 cents. Pp. 362. Chicago: American Medical Association, 1914.*

The success of the physician of to-day depends to a large extent on the wisdom with which he discards remedies which have been proved of little worth in the past. We refer especially to those which have been given a place in the Pharmacopeia, and therefore bear the sanction of authority. Even greater discrimination, however, must be shown in selecting from the new therapeutic agents, proprietary or non-proprietary, those in which confidence can be placed. As an aid in deciding this question, New and Nonofficial Remedies is worthy of adoption by every practicing physician. As a result of the investigations of a large corps of scientists and practical physicians, it carries the assurance that the remedies which it describes are honestly made and marketed and that the therapeutic claims are reasonable and worthy of attention.

When the book was first published, preparations were arranged alphabetically; but in the present edition a more complete classification has been made and those remedies of like character have been grouped together so that the work is like a text-book of materia medica rather than an extra pharmacopeia. Dosage-forms as well as the basic preparations are enumerated. A change of arrangement of the individual articles puts the matter in which the physician is chiefly interested at the beginning in large type, and relegates details of preparation, chemical properties, tests, etc., to the end of the article. This change, we believe, will be generally approved. A study of the contents shows that the Council has neglected no therapeutic advance. Perhaps the most striking feature is the expansion of vaccine therapy as shown by the number of such preparations that are given a place. Salvarsan and other arsenic preparations are also satisfactorily considered. While a considerable number of special radium preparations have not yet been admitted, a general article on the metal itself gives an amount of reliable scientific information not easily found elsewhere.

If we might offer a suggestion, it is that more definite statements regarding therapeutic properties be made. Therapeutic effects that are well established no longer need to be prefaced by the cautionary phrase, "It is claimed," or "It is stated." A careful estimate of those proprietaries which have stood the test of experience, giving their relative therapeutic worth, would be of inestimable value to the medical men who realize that they obtain in this book reliable and authoritative statements concerning nonofficial remedies.

American Red Cross Abridged Text-Book on First Aid. Woman's Edition, Police and Firemen's Edition, Railroad Edition and Miners' Edition. By Major Charles Lynch, Medical Corps, U. S. Army. Paper, Price, 30 cents net. Pp. 148, with illustrations. Philadelphia: P. Blakiston's Son & Co., 1913.

These paper-covered pamphlets, edited by Major Charles Lynch, were prepared and endorsed by the American Red Cross for distribution to the public. Each of the four recently issued contains directions, illustrations and other material specially suitable for the class for which it is prepared. Each edition contains general first-aid directions, and chapters on bandages, injuries in which the skin is not broken, injuries in which the skin is broken, bleeding, injuries due to heat and cold, suffocation and artificial respiration and poisoning, as well as a chapter on common emergencies and one on transportation of the sick and injured. In addition, each pamphlet contains special material suited to its particular purpose.

## *Miscellany*

### COOPERATION AMONG DOCTORS

H. B. Knapp, M.D.
Ionia, Mich.

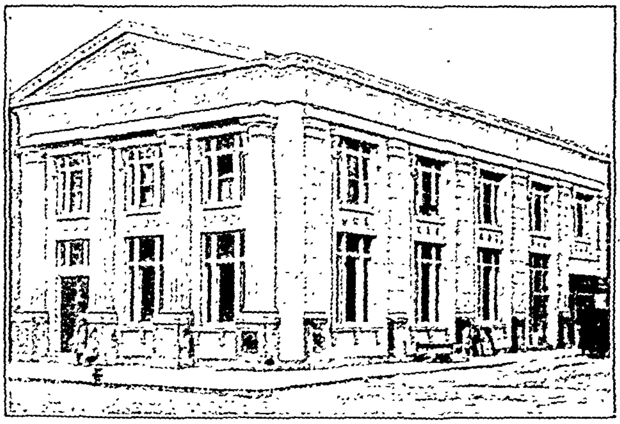

Fig. 1.—Ionia City Hospital (on the second floor).

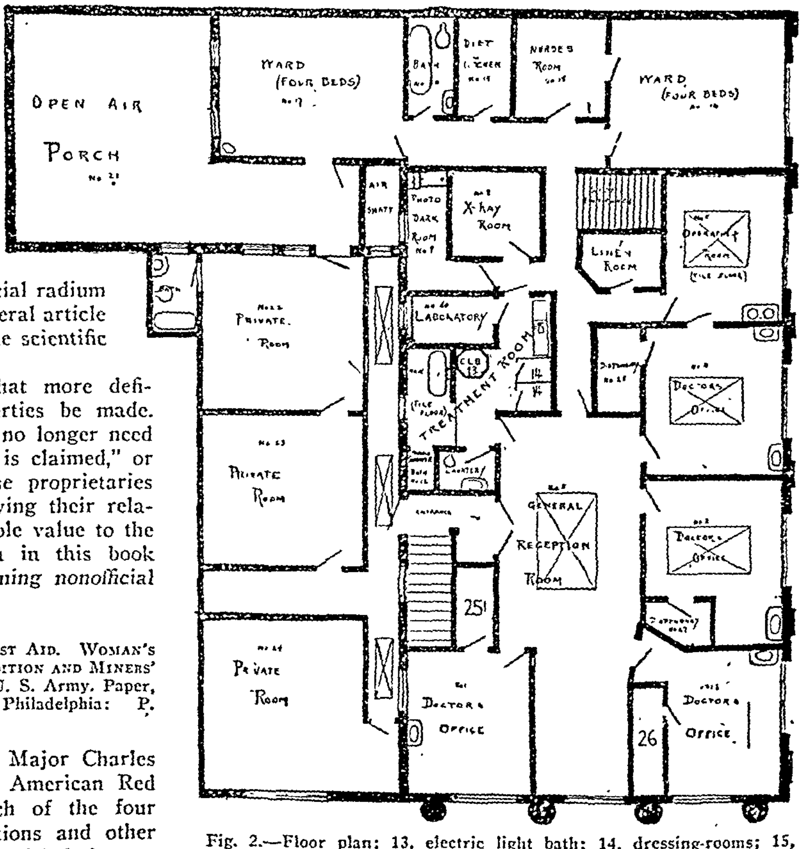

Fig. 2.—Floor plan; 13, electric light bath; 14, dressing-rooms; 15, massage table; 25 and 26, dispensaries.

In order that physicians using modern methods of diagnosis and treatment may properly equip themselves for their labors, they must first spend a considerable sum of money on equipment. Some appliances, such as a cystoscope or a microscope, are not in constant use and may not be used for days at a time. To tie up money in expensive apparatus to be made use of only occasionally often keeps men from purchasing even quite necessary appliances.

The income of the average physician will not permit the purchase of anything like the needed equipment, and yet it is the average doctor (who attends the great bulk of sick persons) who needs equipment to make his work accurate and positive.

Individual physicians might economize effectively by utilizing the benefits to be derived from cooperative methods. To carry out this idea, not only in office equipment, but also in supplying hospital facilities where there are none, four physicians in Ionia, Mich., a city of 7,000 inhabitants, have associated themselves together on a cooperative basis. When a little more than a year ago a new business block was to be built (Fig. 1), the second floor was leased and the floor plan specially arranged and developed as shown (Fig. 2). A general reception room accommodates the patients of all four physicians. Consulting and dispensing rooms are provided for each doctor. In connection with the offices is a ten-bed hospital, consisting of two wards of four beds each, two private rooms, an operating room, a Roentgen-ray room with a dark room, a chemical laboratory, and a hydrotherapeutic treatment room. A trained nurse looks after the hospital, keeps supplies made up, and assists in the offices.

The convenience of hospital facilities in conjunction with the physicians' offices adds comfort to both patient and physician.

Each member of the staff pays especial attention, though not exclusively, to certain branches of medicine, and whenever convenient, refers cases to the physician whose special study best fits him to handle the case. Each man is expected to spend some time away each year in study, while the interests of the absent member are looked after by the remainder of the staff. Staff meetings are held for the discussion of difficult or perplexing cases and for the exchange of ideas.

The purchasing of diagnostic and therapeutic appliances, books, journals, etc., without duplication, affords a much greater equipment for the same money than if the buying were done individually. Drugs and hospital supplies, of course, are bought at better rates than the average doctor buys, ordering in smaller quantities.

The association permits each man to practice as an individual and not on a partnership basis, except so far as the hospital equipment and maintenance is concerned. The staff as a whole concentrates its study at times on some particularly difficult case, each member giving his effort toward a solution of its problems with a minimum of cost to the patient.

An effort has been made to gather together under one roof all the needed diagnostic and therapeutic appliances often beyond the reach of the average doctor practicing alone, and by special study and effort make them available for the largest number of sick and for the accomplishment of the greatest good.

In many small towns and cities without hospital facilities, and even in the larger cities, I believe that this plan would be helpful to both patient and physician, just in proportion to the amount of unselfish effort put into it.

### Little Mothers' Clubs

The *Bulletin* of the Chicago School of Sanitary Instruction, April 4, contains a schedule of the subjects covered in the instruction of the children in public schools who have joined the Little Mothers' clubs. Among the subjects considered are: home sanitation, how to handle a baby, the baby's bed, clothing, bathing, feeding, modification of milk, summer care of babies and a number of other topics. These clubs have been established in twenty-one of the public schools of the city and one settlement house. There are forty separate classes attended by about four thousand girls of the sixth, seventh and eighth grades. Additional clubs will be established from time to time and it is the intention to have one in every city school. The children manifest a most intelligent interest in these classes and in the instruction offered, and it is believed that the Little Mothers' Club idea will accomplish much good, not only in the way of educating the children in taking care of the babies in their homes but also in the general educational effect it will have on the whole family in matters of hygiene.

## Medicolegal

### Employment of Physician by Claim-Agent

*(Pritchard vs. Old Colony Street Railway Co. (Mass.), 103 N. E. R. 692)*

The Supreme Judicial Court of Massachusetts holds that a judgment should be entered for the plaintiff for medical attendance on one Rice, it having been stipulated that such judgment might be entered if, on all the evidence properly admissible and admitted, the court should find that the case should have been given to the jury. The court says that Rice was injured while in the employ of the defendant, and was brought to the plaintiff's office for treatment. No assertion was made that the defendant was liable for the injury, and Rice was taken to the plaintiff's office because he said that the plaintiff was his family physician and he wanted to go to him. There was evidence, to the admission of which the defendant excepted, tending to show that a few days afterward one Silvia, a claim-agent or adjuster for the defendant, called at Rice's house and asked him what physician he had and told him that he could have the company's physician, but that, so long as he wanted Dr. Pritchard, to keep him right along. The plaintiff continued to treat Rice at his home and after he was taken to a hospital, but before he was taken to the hospital the plaintiff had Mrs. Rice ask Silvia's permission, which was given, and whether the defendant would foot the bills, and the reply was in the affirmative, and the company did pay the hospital bill, through Silvia. Subject to the defendant's exception, evidence was introduced by the plaintiff tending to show that he had treated injured employees brought to him by a former claim-adjuster and by Silvia, and that the defendant had paid him for all such cases. Later in the course of the trial this evidence was limited to cases brought by Silvia. The court thinks that the evidence that was excluded should have been admitted. It was admissible, it seems to the court, in connection with other evidence that was introduced, for the purpose of showing the extent to which the defendant had held out and recognized the claim-adjusters as having authority to take employees who had been injured to the plaintiff, and as showing how far the plaintiff was justified by the course of dealing in assuming that the claim-adjusters had such authority, and in dealing with them on that footing. It was for the jury to say whether, taking the whole course of dealing between the plaintiff and the defendant into account, including the payment by the defendant of the bill at the hospital, Silvia had apparent authority to deal with the plaintiff as he did. Silvia testified that neither he nor the previous adjuster had authority as claim-adjuster to engage physicians to attend cases for the defendant, but the jury were not bound to accept his statement as to his authority. They could also take into account the fact that no explanation was offered by the defendant, so far as appeared, of the payment by it of the bill at the hospital. If Silvia had apparent authority to deal with the plaintiff, then the conversation with him that was objected to was properly admitted.

### Powers Conferred on Boards of Health by Quarantine Law

*(People vs. Tait (Ill.), 103 N. E. R. 750)*

The Supreme Court of Illinois reverses, for a defective information, a conviction of the defendant for violating a quarantine regulation of a county board of health.

Taking the statute into consideration, the court thinks the "rules and regulations" which boards of health are authorized to make must be written rules, adopted in an official manner, and duly entered of record. To hold otherwise would be to give the legislation a construction which would render it invalid.

All of the counts of the information were open to the objection that there was no positive averment that a valid rule had been adopted, declaring a quarantine which would include the residence of the defendant. The existence of a single case of scarlet fever, however, is sufficient to call the powers of the board into action.

# *Society Proceedings*

## COMING MEETINGS

American Medical Association, Atlantic City, June 22-26.

American Academy of Medicine, Atlantic City, June 19-21.
American Climatological Association, Atlantic City, June 19-20.
American Gastro-Enterological Association, Atlantic City, June 22-23.
American Gynecological Society, Boston, May 19-21.
American Laryngological Association, Atlantic City, May 25-27.
American Laryn., Rhin., and Otol. Society, Atlantic City, June 19-20.
American Medico-Psychological Association, Baltimore, May 26-29.
American Orthopedic Association, Philadelphia, June 18-20.
American Otological Association, Atlantic City, May 27-28.
American Pediatric Society, New London, Conn., May 26.
American Proctologic Society, Atlantic City, June 22-23.
American Society of Tropical Medicine, Boston, May 29-30.
American Therapeutic Society, Albany, May 29-30.
American Urological Association, Philadelphia, June 18-20.
Arkansas Medical Society, Eldorado, May 19-22.
Conf. of State and Prov. Boards of N. America, Washington, June 19-20.
Connecticut State Medical Society, New Haven, May 20.
Illinois State Medical Society, Decatur, May 19-21.
Maine Medical Association, Portland, June 10-11.
Massachusetts Medical Society, Boston, June 9-10.
National Association for the Study of Epilepsy, Baltimore, May 25.
*New Jersey Medical Society, Spring Lake, June 29.*
North Carolina Medical Society, Raleigh, June 16.
Rhode Island Medical Society, Providence, June 4.
South Dakota State Medical Association, Watertown, May 26-28.

## NEW YORK ACADEMY OF MEDICINE

*Meeting held April 6, 1914*

The President, Dr. William M. Polk, in the Chair

### A Study of the Movements of the Intestines under Artificial Circulation

Dr. Gustave T. Monod, Vichy, France: The work of Carnot and Glénard, in transfusing the intestines of a cat, has shown that the serum of a cat purged with senna has the power of starting in another organism marked peristalsis, the movements of the cecum, and especially the rhythmic movement of every pouch. Not only do the pouches bulge, but there is a decided movement of the appendix. In regard to enteroptosis it seems probable that incompetence of the intestinal wall leads to a lowering of the intra-intestinal tension, and to visceral prolapse. The prolapse begins with the intestines, and then the descent of other organs follows, the right kidney, stomach, liver and spleen, for these organs are interdependent both as regards their suspension in the abdomen, and as regards their function, circulation and innervation. Intestinal prolapse, which is pathognomonic, is rarely primary, but is secondary to causes which are either infective or toxic. Movable kidney is not a separate malady but only a frequent symptom of enteroptosis. British treatises label as enteroptosis, or Glénard's disease, only cases of dislocation of all the abdominal organs, while in truth this is only the last and most severe phase of the disease and is a very rare occurrence. The common form is marked by one or two symptoms only, for instance, coloptosis and nephroptosis. Glénard classifies movable kidney in the large family of "hepatism." This view is supported by the fact that the etiology, symptomatology and treatment of enteroptosis on the one hand, and the inadequacy of the bile function on the other, authorize by their similarity this doctrinal theory. Enteroptosis is a malady of nutrition. The subjective symptoms support this statement. The most conspicuous objective symptoms are a delimitable and palpable cecum, the great relief that occurs when the abdomen is mechanically supported, and very often, a movable kidney. We are still waiting for a single case in which the movable kidney syndrome can be demonstrated to be due to movable kidney alone. On the other hand, we are prepared to show scores of cases in which movable kidney was not the cause of the symptoms observed, and these were the cases in which all the troubles disappeared and the kidney remained unfixed. A new syndrome which Crile discovered through experimental work and I through clinical observation is that of insufficiency of liver, adrenal and brain together.

#### DISCUSSION

Dr. Jacob Kaufmann: A great deal of confusion prevails as to the meaning of enteroptosis. In France it is explained as caused by "hepatism," a term with which Americans are not familiar. The prevalent idea in America is that there is more of a mechanical derangement which is paramount in the production of enteroptosis. I do not believe that any abdominal displacement constitutes disease; abdominal displacements do not necessarily produce symptoms. The stomach and colon may be situated deeply and yet perform their functions in a perfectly normal manner. Enteroptosis in the majority of cases is found in persons who show other traits as well, who are subject to certain functional disturbances. I believe that the best definition of this condition is "a general congenital asthenia." These patients develop neurasthenia as well. There is a marked tendency to an atonic condition of the gastro-intestinal canal associated with secretory disturbances, but also some functional derangement of the liver caused by some disturbance of the internal secretions. The blood-pressure is usually low in the development of this atonic condition. As to treatment, the application of the belt is helpful, but these patients should be treated as general neurasthenics not only by dietetic means but medically too. The tendency to develop asthenia of various organs, not the displacement of the abdominal viscera, is the paramount factor of the condition.

Dr. Max Einhorn: As early as 1889 or 1890 I demonstrated this condition by gastrodiaphany. Stiller's conception of enteroptosis is that it is a congenital disease, but it may be an acquired disease as well. Causes which produce enteroptosis may be removed by the application of methods which are apt to produce reversed conditions. Loss of fat and other tissue with the attendant change in configuration after typhoid, or in women getting up too soon after childbirth and with improper bandaging, may produce the condition, and these instances prove that enteroptosis may be acquired. By building up the body and putting on flesh the condition may be cured. When enteroptosis is associated with cardioptosis, if one builds up the body, the heart will return to its normal position more quickly than any other organ. If enteroptosis is purely a congenital condition it would be impossible to alter the position of the heart. Is enteroptosis a disease or not? I have found prolapsed kidneys, liver, stomach and other organs at times without any symptoms whatever; that is not saying that the condition was normal; it is abnormal and gives rise to the development of abnormal changes and functional disturbances.

In regard to treatment I am in accord with Glénard, who lays emphasis on an ample amount of food, building up the patient, and increasing his size, not only by increasing the amount of fat but by building up the muscular system as well. Bandaging is of secondary importance. The bowels should be regulated, but the aperient waters at spas, etc., do not play a great part.

Dr. George R. Lockwood: Enteroptosis is interesting from a geographic point of view and appears to differ in various countries. The whole proposition of enteroptosis might be simplified. Mankind can be divided into two classes: (1) those with broad costal angles and a transverse stomach—robust individuals, and (2) those with narrow costal angles and vertical stomachs—the thin, nervous individuals. Such a condition of ptosis suggests a reversion to the embryonic type. Gastroptosis produces no local symptoms until the stomach becomes atonic, to which condition it has been predisposed by reason of the nervous instability of that type of case, and when atony advances, symptoms of alimentary toxemia usually intervene.

Dr. J. W. Draper: From the point of view of surgical therapeutics the alimentary canal is divisible into three regions: (1) the duodenum and oral portion of the jejunum —bacterially dead, biochemically alive; (2) the aboral and terminal ileum, and (3) the cecum and colon—biochemically dead, bacterially alive. The duodenum concerns us for two reasons: first, because of its ulcers, the etiology of which is still unknown; and, second, because of its enzymes, hormones and other biochemical bodies which bear so striking a relation to the cause of death in intestinal obstruction, and which stand in significant relation to the causation of duodenal ulcer. Undoubtedly we are right in teaching that in dealing with the oral part of the intestine, as the creation of a gastro-enterostomy for the relief of duodenal ulcer, the subtlest biochemical relations are altered, and this alteration affects the cure rather than the much overrated gastric drainage, thought by some to result from operation. Likening the small intestine to a test-tube, the fiery biochemical reactions of the duodenum may be said to cool in the jejunum and to chill in the ileum. Terminally they are nil, and the chief, if not the only, intestinal function, is conduction. Jerome Lynch has shown that in human beings the streak of chyle passing to the cecum is not continuous, but intermittent, strongly suggesting the squirting of stomach contents into the duodenum, and that the ileal contents are solid or fluid, depending wholly on the diet. On a nitrogenous diet they are fluid; on a mixed diet, well-formed and often solid. Lynch has further shown that the reaction of the ileal contents is always acid, that of the mucous membrane always alkaline or neutral. Significant corroboration of these studies is found in the field of surgery. Ileostomy is always followed by a gain in weight.

The cecum and colon being biochemically dead and bacterially alive hold an interest equal to and in inverse proportion with that of the duodenum. The therapy of this part is concerned with its evacuation. Cannon said that surgeons operate on the human alimentary canal as though it were a simple system of rubber tubes in which holes could be bored at will, rather than an indescribably complex physiologic mechanism. In no part of the canal is the truth of this saying better shown than at its termination. In extreme ignorance of its functions, the colon has been excised, twisted and contorted into bizarre shapes, in the well-intentioned but ill-directed efforts to hasten its emptying. The whole question of the surgical therapy of the colon hinges on the little-understood problem of anastalsis. Dr. George Stewart has recorded the most direct and amazing proof of human colonic anastalsis occurring in a man who, as was his custom, was removing impacted feces from his rectum with a pencil; suddenly he felt the pencil gripped by the bowel and the next instant it was lost in the rectum. Three days later Dr. Stewart could not find the pencil with the proctoscope and opened the abdomen. It was lying not in the sigmoid or colon, but in the cecum. Excess in anastalsis may be the predominant factor in certain types of constipation.

**Dr. Lewis Gregory Cole**: A stomach though greatly collapsed may functionate well. I wish to emphasize the relation between the level of the chyme in the stomach and the position of the cap (first portion of the duodenum). This is very important because if the pylorus as well as the stomach were prolapsed, gastric evacuation would take place on scheduled time. If, on the other hand, the pylorus were high and the stomach prolapsed, gastric retention might result.

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## INTERNATIONAL SURGICAL ASSOCIATION

*Fourth Congress held in New York, April 13-16, 1914*

*(Concluded from page 1503)*

## SYMPOSIUM ON GRAFTS AND TRANSPLANTATIONS

### Grafts in Plastic Surgery

**Dr. H. Morestin**, Paris: Grafts and transplantations have enabled us to remedy many grave deformities, and hold out hope for a future of marvelous progress. Free cutaneous grafting succeeds fairly well when a small fragment taken from a soft thin skin and deprived of its panniculus is applied on a strictly aseptic living surface. The indications are very limited, especially in the reparatory surgery of the face, on account of the trophic disturbance of the graft and the yellowish or whitish coloration which the graft preserves indefinitely. The Italian method must remain an exceptional method even for rhinoplasty and blepharoplasty; its triumph is in the reconstruction of the lobule and the partition of the nose by the help of skin from the palmar surface of the hand. Dermo-epidermic grafting has innumerable indications in the treatment of superficial wounds, especially those which by their extent prevent true methods of autoplasty, as in great loss of substance following burns, traumatisms, removal of tumors, etc. They alone enable the healing of wounds caused by the tearing and complete destruction of the scalp. They are particularly recommended after the excrescences of cancers of the skin in old persons. In the surgery of lupus they constitute a last resort, and they promise but mediocre results in the treatment of scar deformities. Dermo-epidermic grafting combined with other methods of autoplasty may be advantageous. The grafting of hairy parts is attainable either by free transplantation or by the means of a fragment, the last method being preferable. By this means the eyebrow and even the mustache may be restored.

Transplantations of cartilage have solved the problem of total rhinoplasty. Cartilage shows great power of absorption, preserves its life during an indefinite period and is the only one of its kind among transplanted tissues. Doubtless other restorations in addition to that of the nose will be benefited by cartilaginous grafting in serious destruction of the facial structure. Adipose graftings are excellent for filling up empty spaces, bony hollows and depressions of the soft parts, and therefore render great service in the repair of cranial gaps and facial deformities. Fatty tissue with few and almost inert blood-vessels is one of those tissues most easily transplanted from one place to another. The transplant is almost always made use of, though after a more or less short struggle it succumbs, and is replaced progressively by tissues of new formation to which it serves as a protection. This form of grafting is a valuable acquisition to esthetic and reparatory surgery.

### Vascular Grafts

**Dr. E. Villard**, Lyons: There are two kinds of graftings, extemporaneous grafting and the grafting of preserved vessels. The result of a graft is to be appreciated from both the macroscopic and the microscopic points of view. It is possible to have an excellent functional result, and yet the microscope may reveal profound lesions on a segment macroscopically healthy. From the point of view of technic, Carrel's process gives the maximum guarantee. Arterial homoplastic grafts give good results macroscopically, but the histologic lesions seen after the lapse of some time places reservations on the vitality of the vascular graft transplanted from one animal to another of the same sort. Arterial heteroplastic grafts are possible, but it appears that the graft serves only as a protection to a process of reparation on the part of the animal undergoing the grafting. Venous grafts are possible but are more difficult to realize than arterial grafts. The grafted venous segment becomes hypertrophied, and undergoes histologic changes which seem a step toward the arterial structure. Some preserved vascular fragments may be grafted with success, but only their elastic frame is grafted, which is susceptible of being absorbed by the cellular elements arising from the grafted subject. Vascular grafting may be applied to human surgery in the course of vascular traumatism, in the extirpation of a tumor adherent to the large vessels, and in the cure of aneurysm. If the indications exist to perform a vascular grafting in man, one should have recourse by preference to an autoplastic, particularly to a venous, grafting.

### Grafts and Transplantations

**Dr. Ulmann**, Vienna: The hopes raised fifteen years ago on the future of the transplantation of tissues and organs have been only partially realized. Heteroplasty seems to meet anaphylaxis as its principal obstacle, while homoplasty encounters the biochemical properties of the individual.

Heteroplastic transplantations, with the exception of bony tissues, always gives bad results. Besides, the bone itself does not remain but is replaced by the bony tissue of the grafted material. The results of homoplastic transplantations are variable; given identical quantity of sanguineous serum from the cellular protoplasm of two subjects in the same condition, homoplasty may probably give as satisfactory results as autoplasty.

### Grafts and Transplantations

**Dr. E. Lexer**, Jena: The various tissues used in grafting are differently appreciated by practitioners and pathologists. An excellent clinical result may be preserved not only if the graft takes but if it disappears, giving place to tissues of substitution, and sometimes if completely surrounded by adhesions. The graft may be expelled in cases of failure, or it may disappear before the process of substitution has taken place, or the substitution may confine itself to the formation of scar tissue. The cause of failure apart from suppuration rests principally in the existence of small blood-clots which prevent the transplanted part from becoming normally established. Some of the conditions necessary for a good implantation are vitality, nutrition, power of acclimatization and the strength of the transplant for sufficient regeneration, as well as the condition of the wound on which the transplant is made. The value of epidermic and cutaneous homoplasty is very slight and its results doubtful.

### Transplantation of Organs

**Dr. Alexis Carrel**, New York: Autoplastic transplantations of the kidney have been performed with complete success in dogs. It was found that in most instances the animal remained in the best of health. A female dog that underwent a double nephrectomy and replantation of one kidney remained in perfect health, had a number of pups, and died of intercurrent disease almost two and one-half years after the operation. Microscopic examination of the kidney showed that it was entirely normal. By this and similar experiments it has been definitely proved that the extirpation of the kidney, its perfusion in Locke's solution, complete interruption of the circulation for from fifty to sixty minutes and the suture of its vessels and ureter does not interfere with its function. In homoplastic transplantations of the kidneys the results are different; after six or seven days, albumin appears in the urine and the kidney becomes congested. After twenty-five or thirty days there is a great deal of albumin, and in one instance there was hematuria. After seven or eight months the albumin disappears, but the kidney is found to be in a sclerotic condition. When the animals undergo a bilateral nephrectomy they always die within a few weeks. It is possible that by using animals that are closely related, as mother and son, better results can be obtained. The present aspect of the problem is to find the causes of the reaction of an organism against a new organ and to discover by what means this reaction may be prevented and the organ become adapted to its new owner. Some of our experiments indicate that general infection in animals seems to prevent the reaction of the organism against the new organ, and it is thought that the factors which are instrumental in the reaction of the organism against foreign tissue are the same as those used to fight a general infection, and that when this mechanism is engaged in fighting a general infection the transplanted organs are able to become adapted to the new organism. The studies of James B. Murphy of Rockefeller Institute along this line make it seem probable that it is the action of the spleen and the bone-marrow which allow the organism to fight efficiently the foreign tissue which has been transplanted on it, and that when the action of these organs is less active a foreign tissue can develop rapidly after it has been grafted.

**Prof. A. Depage**, Brussels: My assistant, Dr. Danis, sought to restore the wall of the gall-bladder by the application and suture of a graft taken from the wall of the jugular vein, and in a second series of experiments he substituted a segment of the jugular vein for a portion resected from the choledochus. The restoration of the vesicle wall by the application of a venous graft succeeded in most instances. The operation was relatively easy, and the cicatrization assured the vitality of the graft. From the histologic point of view the external surface of the transplanted vein recovered a new endothelium. On the internal surface the mucosa developed little by little on the graft and finally was entirely recovered as in a simple cicatrix. The substitution of a segment of vein for a portion of the choledochus was more difficult to effect. Dr. Danis after making the attempt a number of times succeeded in keeping alive dogs in which he had removed the gall-bladder with the common bile-duct and established a communication between the hepatic canal and the ampulla of Vater by interposing a segment of the jugular vein. By the examination of specimens several months after operation Dr. Danis was able to prove the viability of the venous graft and its perfect transformation into a biliary canal.

**Dr. K. A. J. Mackenzie**, Portland, Ore.: I had a patient with Recklinghausen's disease five or six years ago who developed a tumor on the sciatic nerve. The operation consisted in a resection of the nerve below the gluteus maximus, which was followed by trophic disturbance in the limb. An anastomosis between the internal and external popliteals had a striking effect on the trophic disturbance. Several weeks later the external portion of the popliteal nerve was split and buried in muscle. The patient has recovered sensation and can walk with unaided locomotion.

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## TENNESSEE STATE MEDICAL ASSOCIATION

*Eighty-First Annual Meeting, held at Memphis, April 7-9, 1914*

*(Concluded from page 1499)*

### When Should Gastric Ulcer Be Treated Surgically and When Medically?

**Dr. Bertram W. Sippy**, Chicago: According to Virchow, 37 per cent. of all carcinomas affecting the human body are located in the stomach. In text-books as long ago as ten or twenty years the statement was made that at least 10 per cent. of all carcinomas of the stomach began at the seat of an old ulcer. As many years ago as that an enthusiastic pupil of Zenker asserted that all carcinomas of the stomach developed at the seat of an ulcer. Somewhere between the two extremes the truth lies. The more we know about it, the more frequent we have the notion of carcinoma developing on an ulcer. The Mayo statistics are as high as 70 per cent. The most conservative estimate places it as high as 40 per cent. or more. Nowadays patients afflicted with stomach disorders come to us complaining that there is something wrong with them. A number of them have ulcers, but they are not recognized. The common time for the diagnosis of ulcer is after it has existed for two or two and a half years, when some surgical complication is present or carcinoma.

Our duty lies in acquiring accurate knowledge of the early symptomatology of ulcer. Ulcer of a few months' standing is one of the most comfortable things the physician is called on to treat. The patients get well rapidly. There is no place where we can do so much toward the cancer problem as by buckling to it and learning to detect the early signs of ulcer of the stomach and treat it energetically.

### Brain Abscess

**Dr. Henry O. Reik**, Baltimore: The treatment of brain abscess is purely surgical; the abscess cavity must be disclosed, evacuated and drained. The prognosis of this disease is favorable only in those cases which are recognized early and treated promptly. Spontaneous recovery by rupture and discharge through the original channel of infection has not infrequently taken place, but cannot be anticipated.

### Suprapubic Prostatectomy

**Dr. George R. Livermore**, Memphis: I prefer this route because I can perform the operation more easily and quickly than the perineal operation. It gives me a clear field. I am not afraid of injuring any important structures. I have never had any alarming hemorrhage. Drainage is satisfactory and irrigation of the bladder easily accomplished. Stones can be removed readily, and encysted ones not overlooked. The exact condition of the bladder can be noted. The two-stage operation and silver nitrate intravenously have practically eliminated the danger of sepsis. There is less danger of shock, because the operation is quicker, can be done in two stages, and may be performed under local anesthesia.

### The Present Status of Blood-Pressure

Dr. Frank A. Jones, Memphis: The taking of blood-pressure should be considered only as an adjuvant in the process of physical examination. The physical findings together with the symptoms and history of the case should always play the leading rôle.

### The Serum Diagnosis of Gonorrheal Infection

Dr. R. L. Jones and Dr. Irving Simons, Nashville: The blood-test for gonorrheal infection is even more accurate than the Wassermann test in lues. It is of greatest value in chronic cases. The complications of gonorrhea have given 100 per cent. of positive tests. Chronic uncomplicated gonorrhea will give a positive reaction. No non-gonorrheic has given a positive test. A negative blood-test is advisable in a candidate for matrimony who gives a history of previous gonorrheal infection, even though apparently cured.

### Gall-Bladder Disease

Dr. J. Hugh Carter, Memphis: I wish to plead for a more thorough study of gall-bladder disease, and for early surgical interference, just as in appendicitis. We should not wait until the patient has been poisoned from cholemia, or has developed the condition of cardiorenal disease.

### Treatment of Amebic Dysentery

Dr. O. N. Bryan, Nashville: The effect of the emetin treatment is marked from the very first. The patient notices that the stools diminish in frequency at once. The blood and mucus decrease and disappear rapidly and the stool gradually assumes its normal appearance. The patient gradually eats more and is not disturbed. He soon eats anything he wishes. His pain is relieved and he is able to sleep all night without having to rise to go to stool.

### Goiter

Dr. C. N. Cowden, Nashville: Surgery of the thyroid is a most satisfactory procedure, giving at it does almost immediate relief, with very brief disability. The danger is in delay until complications develop that cannot be cured, or in faulty judgment as to when, how and the extent of the operation that is indicated. The safety of the patient is in the hands of the internist, who sees him first and advises what should be done.

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# *Current Medical Literature*

## AMERICAN

Titles marked with an asterisk (*) are abstracted below.

### American Journal of Tropical Diseases and Preventive Medicine, New Orleans

*April, I, No. 10, pp. 669-750*

1 Ankylostomiasis. C. M. Fauntleroy, Washington, D. C.
2 Beriberi. P. G. Woolley, Cincinnati.
3 Preventive Vaccination against Typhoid. A. Chantemesse, Paris.

### Arkansas Medical Society Journal, Little Rock

*April, X, No. 11, pp. 271-294*

4 Bone Surgery. Case-Report. W. F. Smith, Little Rock.
5 Defective Children. E. P. Bledsoe, Little Rock.

### Boston Medical and Surgical Journal

*April 30, CLXX, No. 18, pp. 673-708*

6 Art of Companionship in Mental Nursing. H. R. Stedman, Brookline.
7 Certain Aspects of Medical History of Exophthalmic Goiter. R. Fitz, Boston.
8 *Demonstration of Gall-Stones by Roentgen Ray. A. W. George and I. Gerber, Boston.
9 *Intracranial Hemorrhage in New-Born. Report of Cases. R. M. Green, Boston.
10 Some Present Problems in Tuberculosis. P. C. Bartlett, Rutland.
11 Tuberculous Child. C. Floyd, Boston.
12 Social Worker's Educational Influence in Community. G. B. Underwood, Gardner.
13 Field of Work of Antituberculosis Association. S. H. Stone, Boston.

8. **Gall-Stones Shown by Roentgen Ray.**—George and Gerber believe that gall-stones can be demonstrated by the Roentgen ray in nearly every case of gall-bladder disease of long standing where stones are really present. The chief sources of error are renal calculi, calcified mesenteric glands, and costochondral ossification. These can be differentiated by proper technic.

9. **Intracranial Hemorrhage in Newborn.**—Experience with seven cases leads Green to conclude that intracranial hemorrhage may occur in the newborn either from the trauma of operative or normal labor or in association with *hemorrhagica neonatorum.* It often does not present the typical clinical picture of increased intracranial pressure. Its presumptive diagnosis depends on early recognition of refusal to nurse, pallor, and slight facial edema, which may be confirmed by the appearance of more classic signs. Diagnosis may be positively established, and some therapeutic relief afforded, by lumbar puncture (when the hemorrhage is infratentorial), or by cranial puncture (when the hemorrhage is over the cerebral convexity). If these measures fail to give relief, operative decompression by craniotomy is indicated. The majority of intracranial hemorrhages in the newborn, Green claims, are subdural, but intraventricular hemorrhages may also occur. The source of bleeding may be from laceration of the tentorium, of the choroid plexus, of the longitudinal sinus or of the pial vessels. In cases associated with hemorrhagic disease preliminary transfusion may be indicated before craniotomy. The gravity of the prognosis demands an enlightened prophylaxis by avoiding all unnecessary occasion for fetal trauma.

### Cleveland Medical Journal

*April, XIII, No. 4, pp. 221-306*

14 Report of Housing Conditions in Cleveland in 1913. M. Chadsey, Cleveland.
15 Our Primate Ancestors. T. W. Todd, Cleveland.
16 History of Physiology of Respiration. R. G. Pearce, Cleveland.
17 Postoperative Interstitial Hernia; Hypernephroma with Metastasis in Chest Wall. C. E. Briggs, Cleveland.

### Journal-Lancet, Minneapolis

*April 15, XXXIV, No. 8, pp. 201-229*

18 Associated Lesions of Brain Tumors. A. S. Hamilton, Minneapolis.
19 Clothes-Basket and Coal-Stove Used as Baby-Incubator. F. E. Weed, Lankin, N. Dak.
20 *Surgical Shock as Factor in Obstetric Operations. A. L. McDonald, Duluth.
21 *New Device for Anastomosing Blood-Vessels. E. S. Muir, Winona.
22 Diagnosis and Conservative Treatment of Nasal Sinus Disease. E. J. Brown, Minneapolis.

20. **Surgical Shock as Factor in Obstetric Operations.**—Speaking of drugs in this condition McDonald says that ergot in some form is indicated to control uterine contraction and also helps to raise the blood-pressure by peripheral vasoconstriction. To be of any value it must be given hypodermically. Epinephrin is advised by many, and is given in doses of fifteen minims of a standard solution in 1,000 c.c. of salt solution, to be repeated, for the effect is transitory. Caffein and coffee are questioned, but the immediate effect of coffee is usually good; it is easily obtainable, and as it later causes diuresis is of value. Digitalis is doubtful, but probably too slow, even when given hypodermically. What is needed is some drug which will act promptly and specifically on the peripheral arterioles, raise the blood-pressure, and slow the heart. McDonald suggests the use of strophanthin in doses of 1 mg. intravenously. These cases must be handled intelligently from the outset, and can be satisfactorily controlled by rest, morphin, external heat, ergot, salines and hot coffee. Further stimulation and drugs that increase the irritability of the centers are a push down hill. Help nature to control the centers and support the circulation while this is being accomplished.

21. **Device for Anastomosing Blood-Vessels.**—The device used by Muir is a bone cylinder with a ring that slopes down to a very thin edge for the retention of a ligature for use in cuffing the artery back over it. These cylinders are turned out of green bone taken from the shin-bone of an ox. The surfaces, outside and inside these cylinders, must be perfectly smooth; and the size 1/32 to 1/16 inch smaller than

the artery in its normal condition filled with blood. The instruments to be used, besides the bone cylinder, are a device for holding the tube permanently while it is being applied without crushing; a slender spiral foreign body remover to thread the proximal end of the artery, though this may also be done by a needle and suture; four mosquito forceps: two rubber-protected hemostats or mosquito forceps; Crile forceps; sharp scissors for cutting away the cuff of adventitia.

The artery is brought to the surface by ample incision, and is clamped in each angle of the wound by the rubber-protected forceps tight enough to prevent slipping. The artery is cut across and, if desired, a portion removed. The adventitia on each cut end is pulled out with a Crile forceps, and is cut off with sharp scissors. The tube is now held in the special forceps, and the slender spiral foreign body remover is threaded through the tube, and by rotation is caused to engage the proximal end of the artery, which is drawn through the tube and caught by four mosquito forceps equidistant from each other, catching all of the coats of the artery firmly but not too deeply into the lumen. With these applied, the artery is curved back over the slanting surface of the tube beyond the ring, and is ligated with silk or fine chrome catgut. Still holding the bone tube in the forceps the distal end of the artery is caught by four mosquito forceps with the tube held parallel to it, pulled over the slanting ring of the bone cylinder and tied with silk. The success of the operation will now be demonstrated by removing the forceps when the arteries will be seen to pulsate regularly, and should not leak a single drop, as the leakage causes clotting and is the cause of many failures in anastomosis by other means. During the entire procedure the field of operation, and especially the arteries, must be kept moist with normal salt solution; otherwise the caliber will shrink to a point where it is impossible to continue the operation. The points essential to success lie in the picking of a tube considerably smaller than the artery, making anastomosis much more easy of accomplishment. The bone is absorbed in from three to four weeks. Tubes can be boiled with the other instruments or sterilized in a 5 per cent. carbolic acid solution.

## Medical Record, New York

*May 2, LXXXV, No. 18, pp. 783-828*

23 Development of Complement-Fixation Tests. C. C. Sutter, Rochester.
24 *Intensive Treatment of Syphilis of Nervous System by Neosalvarsan Intravenously, and Mercury by Inunction. J. W. Stephenson, New York.
25 Value of Small Insurance Classes for Statistics. E. W. Dwight, New York.
26 Case of Endophlebitis Obliterans of Central Retinal Vein with Resulting Acute Glaucoma. D. Webster, New York.
27 Treatment of Pulmonary Tuberculosis by Induction of Artificial Pneumothorax. J. S. Ford, Gabriels.
28 Arteriosclerosis as Orthopedist Views It. S. Epstein, New York.
29 Simple Efficient External Metal Nasal Splint. S. E. Pendexter, East Orange, N. J.
30 Lacerated Cervix Uteri and Reflex Irritation. I. W. Ballard, Opelika, Ala.
31 Salvarsan in Non-Syphilitic Diseases: Preliminary Report. W. H. Best, Brooklyn.

24. **Treatment of Syphilis of Nervous System.**—The method adopted by Stephenson is as follows: 0.45 grains neosalvarsan is administered intravenously every third day (*i. e.*, given a Monday, repeated the following Thursday, two days intervening) for five injections. In paresis, taboparesis, and other actively severe infections, this is supplemented by inunctions of mercury (40 to 60 grains) the days the patient does not receive the injection.

Many, and in fact the majority of unfortunate sequelae of neosalvarsan administration are attributable, in Stephenson's opinion, to faulty preparation or administration of the drug. He considers 75 c.c. too concentrated a solution of 0.45 grains and invariably uses from 90 to 100 c.c. Freshly distilled water is boiled at least five minutes and then cooled to room temperature by running water. The apparatus used is the ordinary gravity one. The method of administration is as follows: 30 c.c. of lukewarm, previously sterilized, decinormal saline is introduced and as this escapes from the container the neosalvarsan solution is poured in, and as the last portion leaves the container 30 c.c. of lukewarm decinormal saline is again introduced. Especial care is taken that as small amount as possible of the neosalvarsan solution comes in contact with the warm saline, lest the warmth of the saline increase the toxicity of the drug.

Between thirty-five and forty cases have been treated after this method. Stephenson has had no alarming sequelae of the first series. Of the five patients given further injections, one, to whom the second series of injections was given at irregular intervals, died twenty-nine days after the last injection.

The immediate effect, or so-called reaction, following the series of five have been as follows: It is the usual course with tabetics that the pains are much worse from twenty-four to thirty-six hours after the first injection. After the second there may be a slight exaggeration, after the third none. In a very small number chill and slight rise of temperature have followed the first injection only. As yet there has been no case of diarrhea.

In the large majority of cases a slight conjunctival icterus has appeared after the third injection, but has been only of a few days' duration. In those cases supplemented by mercury the patient usually expresses himself as feeling "very weak" after the fourth injection, but this Stephenson attributes to the mercury, as the patients who receive no mercury never so express themselves.

One case developed a skin Herxheimer after each injection. One case developed a mild arsenic dermatitis. One case developed a herpes zoster two weeks after last injection. In paresis the mental condition is usually more pronounced following the first injection, but not so affected by subsequent ones.

## New Mexico Medical Journal, Las Cruces

*April, XII, No. 1, pp. 1-33*

32 Study of Thyroid. S. D. Swope, Deming.
33 Duodenal Ulcers. A. W. Morton, San Francisco.
34 Sexual Hygiene. M. G. Cartwright, Albuquerque.
35 New Therapy in Variola. M. F. Des Marais, Las Vegas.
36 Treatment of Chronic Constipation. M. K. Wylder, Albuquerque.
37 Moving-Picture Shows. E. C. Prentiss, El Paso, Tex.

## New York Medical Journal

*April 25, XCIX, No. 17, pp. 813-860*

38 Prophylaxis of Measles. J. Ruhräh, Baltimore.
39 *Value of Cocain in Disturbances of Metabolism. W. H. Porter, New York.
40 Fifteen Cases of Diabetes and Glycosuria. L. Napoleon, Philadelphia.
41 Surgeon as Autocrat of Operating-Room. J. W. Kennedy, Philadelphia.
42 Medical Testimony and Legal Supervision. P. Bartholow, New York.
43 Effects of Alcohol and Tobacco on Life Expectancy. T. D. Crothers, Hartford, Conn.
44 Army Medical Corps, H. S. Baketel, New York.
45 Psychopathology of New Dances. A. A. Brill, New York.
46 Magnetized Needle Holder. C. M. Stimson, Philadelphia.
47 Dangerous Medical Legislation. C. F. Pabst, New York.

*May 2, No. 18, pp. 861-908*

48 Different Theories of Aphasia. C. K. Mills, Philadelphia.
49 Clinical Interpretation of Aphasia. F. X. Dercum, Philadelphia.
50 Tuberculosis of Right Testicle Secondary to Removal of Left Testicle for Tuberculosis. V. C. Pedersen, New York.
51 Cerebrocerebellar Diplegia. L. P. Clark, New York.
52 Dermatitis Exfoliativa in an Insane Patient. R. M. Alexander, Wernersville, Pa.
53 Laryngeal Cancer. H. Smith, New York.
54 Pituitrin. Its Abuse and Dangers. A. J. Rongy and S. S. Arluck, New York.
55 New Urethroscope. G. MacGowan, Los Angeles.
56 Complete Inversion of Uterus Following Delivery. J. H. Telfair, New York.
57 Variation in Drugs. W. M. Gregory, Berea, Ohio.

39. **Cocain in Disturbances of Metabolism.**—In disease processes and in all profound disturbances of metabolism, in which the normal food products are no longer able to stimulate or excite into full physiologic activity the protoplasmic masses of the animal economy, when everything is at a standstill, as it were, or even when it is apparent to all that the patient is steadily losing ground, the addition of a half grain or more of cocain three times daily, has, in a

large number of instances under Porter's observation, during the past twenty-five years, produced almost miraculous changes for the better, and in cases that seemed almost helpless. The secretory products which before its administration gave evidence of profound metabolic disturbance within the system, under its influence changed steadily to those indicative of a more nearly normal state of the system, until the abnormal finally gave way to the perfectly normal. In all chronic affections its power for great good cannot be overestimated.

During the past ten years, Porter has employed it more and more in the acute diseases. Given early in pneumonia, and throughout the disease, the results obtained have convinced him that the chances for recovery are greater than without its administration. The same may be said of all acute diseases, for if it has this great sustaining power that all the evidence seems to prove it has, the power to resist and eliminate the toxins of disease must be greatly augmented. Having prescribed cocain extensively for nearly thirty years, Porter has yet to see a single person acquire the so-called cocain habit. He usually employs it in combination with caffein and strychnin.

### Texas State Medical Journal, Fort Worth

*April, IX, No. 12, pp. 363-396*

58 Imperforate Anus. J. E. Hodges, Houston.
59 Cancer of the Breast. F. G. Beall, Fort Worth.
60 Caloric Requirement in Infant-Feeding. J. I. Collier, Taylor.
61 Papillomata of Larynx. H. B. Decherd, Dallas.
62 Ligation of Canaliculi in Cataract Operation with Dacryocystitis Present. G. P. Hall, Houston.

### Vermont Medical Monthly, Burlington

*April 15, XX, No. 4, pp. 79-104*

63 Gastro-Enterostomy: Cause of Failure, Fascial Ligature of Pylorus; Account of New Method of Treating Adherent Perforating Ulcers of Posterior Wall. E. Archibald, Montreal.
64 Round of New York Children's Clinics. C. K. Johnson, Burlington.
65 Early Medicine. W. G. Ricker, St. Johnsbury.
66 Common Duct Obstruction. J. B. Deaver, Philadelphia.

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## FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

### British Medical Journal, London

*April 18, I, No. 2781, pp. 845-896*

1 Some Diagnostic Failures. H. B. Shaw.
2 *Comparison of Inflammation and Tumor Formation. C. F. M. Saint.
3 *Three Cases of Traumatic Rupture of Small Intestine. F. Radcliffe.
4 *Rupture of Duodenum Caused by Blow. C. Maddock.
5 Condensation Obstruction in Relation to Pericolitis and Intestinal Kinking. S. Mort.
6 Fatal Case of Veronal Poisoning. E. Russell and G. Parker.
7 Veronal Poisoning: Case of Recovery from 125 Grains. J. M. H. Munro.
8 Case of Veronal Poisoning. (35 Grains.) M. I. Dick.
9 Results of Nephropexy. W. Billington.
10 Heart-Block Complicating Case of Pneumonia. R. R. M. Porter.
11 Two Cases of Diphtheria with Unusual Complications. (Pulmonary Abscess; Paralysis of Circumflex Nerve.) J. J. Jervis and V. C. Martyn.

2. **Inflammation and Tumor Formation.**—Saint dwells on the similarity of the clinical histories of inflammation and tumors, i. e., new growths, as to cause, progression and ultimate ending.

3. **Traumatic Rupture of Small Intestine.**—The three cases cited by Radcliffe have many points in common. They were all well-developed, strong men, in the prime of life; they all suffered accidents which involved being suddenly and unexpectedly dragged by their arms fully extended above their heads; none of them complained of violence applied to the abdomen or showed any external evidence of severe injury to that part. Two of them were absolutely free from the slightest abrasion or bruising on the trunk; the other had some superficial skin scratches; none showed immediate marked collapse or such symptoms as would lead one to feel certain that any severe internal injury had occurred; each had a rupture of the small intestine; in all the rupture was transverse to the long axis of the bowel; and in all the rupture was within a foot of the commencement of the jejunum; and unfortunately all of them died.

Radcliffe suggests that the mechanism of the rupture was as follows: When each was suddenly dragged by the arms, the chest would be forced into the position of full inspiration, and the diaphragm raised, as shown by indrawing of the epigastrium; therefore the upper abdominal organs (liver, stomach and spleen) would be drawn upward. The pancreas and duodenum are usually considered to be fixed, but any small movement which might take place in these organs would be in an upward direction. At the same time, as one easily finds by standing with the arms extended above the head, the lumbar spine would be markedly arched forward, and there would be very strong contraction of the anterior abdominal muscles made by the patient in the effort to recover himself. Radcliffe found by examining thin people in this position that the anterior and posterior abdominal walls actually meet. The small intestine would then be suddenly and violently forced down toward the pelvis, and it is possible that the *only part* of the small intestine which cannot go downward, the first part of the jejunum, is so dragged on as to rupture transversely, just as one finds that a string fixed at one end and jerked by the other, breaks near the fixed end.

4. **Rupture of Duodenum.**—In Maddock's case a wooden plank fell from the ceiling on the patient's right side while he was asleep. This occurred six weeks before Maddock saw the man. The corner of the plank hit him over the eighth rib in the midaxillary line. For three weeks he felt a dull aching pain, and then noticed a small swelling, and the pain became severe, especially on respiration; at the same time he said he had fever every day. There was no history of dysentery. The patient was desperately ill, extremely emaciated and in great pain; the evening temperature was 101.8 F. and the pulse 100; a dry cough was very troublesome. Over the center of the eighth rib was a fluctuating swelling about 2 inches in diameter; it was extremely painful on palpation. The liver dulness was diminished, reaching to 1 inch above the costal margin. The abdomen was moderately swollen and hard; it was evident that chronic peritonitis was present. The bowels moved freely, the tongue was coated.

Maddock incised the swelling in the seventh intercostal space in the midaxillary line, and at once gas and 6 ounces of pus escaped. The odor was fecal. He then introduced a finger and discovered that the eighth rib was denuded of periosteum and very rough. He could feel an abscess cavity in the right lobe of the liver, and that the liver had fallen away from the chest wall, so that he could only just reach it. Above he could feel the diaphragm, but below nothing. He put a large-sized drainage tube just through the chest wall, and applied an antiseptic dressing and bandage. Seven days later the man suddenly got out of bed and fell back onto the bed in a state of collapse, from which he never recovered. *Post mortem* it was found that the posterior surface of the descending portion of the duodeum had ruptured in the long axis of the bowel. The infection then spread round the chest wall, along the eighth rib, pointed, and then infected the liver, forming an abscess cavity. The lower portion of the right lobe of the liver was gangrenous. The peritoneal cavity contained serous fluid and large masses of clear gelatinous matter.

### Lancet, London

*April 18, I, No. 4729, pp. 1095-1162*

12 Gangrene of Lung. H. B. Shaw.
13 Morphology of External Genitalia of Mammals. F. W. Jones.
14 *Intraspinous Treatment (Swift-Ellis) of General Paralysis. E. Mapother and T. Beaton.
15 Tonsils and Adenoids in Children. T. B. Layton.
16 Partial Gastrectomy for Gastric Ulcer Recurring after Gastro-Jejunostomy. J. Cunning.
17 Treatment of Duodenal Fistula. C. A. Pannett.
18 Traumatic Dislocation of Hip-Joint. H. Rischbieth.

14. **Treatment of General Paralysis.**—The four patients selected for the treatment by Mapother and Beaton were cases showing but a very slight grade of deterioration, as it

was felt that if arrest of the disease could be effected the results would be of much greater value if the process of actual destruction of the nervous elements had not proceeded very far. The following is a short summary of the history of each case and of the conditions existing at the time of commencement of treatment.

The changes observed in the conditions of the patients since the commencement of the treatment are classified under the following heads: 1. Changes in the mental state. 2. Change in the physical signs of the disease. 3. Changes in the Wassermann reaction. The changes in the mental state have not been strikingly favorable. Case 1 passed through an attack of hallucinosis, both auditory and visual, without marked clouding of consciousness, immediately following the second repetition of the treatment and lasting about fourteen days. Since then he has shown some tendency to euphoria, and though remembering his former hallucinatory periods and recognizing their subjective character he is lacking in a correct insight into their gravity. His memory, however, remains good and he is more active and interested in his surroundings. Case 2 remains practically normal. Case 3 shows the same amnesia for current events and of all those since the manifest onset of the disease with the same tendency to fabrication. In Case 4 the patient's general dulness persists unchanged, without evidence of progressive dementia. Confusional periods, such as were observed previous to the treatment, have not occurred lately.

The changes in the physical signs are as follows. In Case 1 the tremors have entirely disappeared, and the station, gait, and coordination are normal. The pupils are medium in size, equal, regular, and react almost normally in speed and extent. Some analgesia is present. In Case 2 the pupils now both react slowly to convergence and the left only to light; no other change is to be noted. In Case 3, about the beginning of February the pupils were practically normal in form and reactions, but since then have shown a tendency to return to their initial condition. There has been some diminution of tremors and some improvement in coordination. In Case 4 there was a temporary improvement in the condition of the pupils, but this has again disappeared. The tremors are gone and the tendon reflexes are a little less exaggerated. With regard to the Wassermann tests, the quantitative estimation of the Wassermann reaction in both blood and the cerebrospinal fluid showed no change whatever; in all cases the reaction in both remains as strongly positive as it was before treatment. The cerebrospinal fluid in addition was examined for the presence of globulin and excess of cells, and both those conditions were present throughout.

### Practitioner, London

*April, XCII, No. 4, pp. 457-600*

19 On Functions of Thyroid, Suprarenal, and Pituitary Glands. J. Barr.
20 Chronic Splenic Anemia and Banti's Disease. H. D. Rolleston.
21 *Indications for Surgical Treatment in Intracranial Tumor. H. H. Tooth.
22 Ectopia of Bladder. A. Edmunds.
23 Difficulties of Diagnosis in Disease in Children. J. Porter-Parkinson.
24 Diagnosis and Treatment of Epilepsy in Childhood. E. B. Smith.
25 *Nephroptosis. K. M. Pardhy.
26 Significance of Urinary Excretion of Creatin and Creatinin. W. MacAdam.
27 Autotherapy in Prevention and Cure of Purulent Infections. C. H. Duncan.
28 Treatment of Eczema. W. K. Sibley.
29 Extraction of Diabetic Cataract. M. H. Whiting.
30 Recent Progress of Gynecology. F. J. McCann.
31 Retrospect of Otology, 1913. M. Yearsley.
32 Positive Value of Cardiac Sign in Diagnosis of Gastric Cancer. W. Gordon.
33 Schlatter's Disease. Case Report. C. Corben.

21. **Surgical Treatment in Intracranial Tumor.**—A close study of the records of 497 cases of cerebral tumor was made by Tooth to arrive at some conclusion as to the indications for surgical treatment in these cases. He states that of all new growths the endotheliomata are most favorable for radical treatment. They occur almost entirely in the anterior part of the cranial cavity, and are therefore, as a rule, accessible to operation. In spite of this there is a 46.6 per cent. mortality in the frontal region. In the central region the results are still better, with a mortality of 33.3 per cent. It would appear then that there is every justification for the radical treatment of endothelioma; the tuberculomata, though not malignant in the ordinary sense, cannot be treated surgically without grave risk of tuberculous meningitis. The sarcomata and carcinomata are comparatively few, and, if diagnosed as such, are not suitable for any operation other than the relief of pressure. Recurrence accounts mainly for the high mortality in glioma. Successful removal of a glioma undoubtedly affords relief of pressure, but recurrence practically always follows sooner or later.

The results of all surgical treatment of the extracerebellar cases are disappointing in the extreme. Attempts to remove these tumors must be abandoned for the present, until some safer modus operandi has been devised. The most that seems justifiable is to relieve pressure by free craniectomy, followed, after as long an interval as possible, by the second stage of decompression. In fact, in some cases it will be found that such relief may follow the first stage that the second may be indefinitely postponed.

The conditions which in Tooth's opinion may indicate the necessity for immediate relief, whether localization has been made or not, are referable to rise of intracranial pressure, and suggest either a rapid phase of growth of the tumor or an internal hydrocephalus. These are: (a) Increasing swelling of the optic disk, which should be measured ophthalmoscopically at very frequent intervals, say every two or three days. (b) The grosser form of optic neuritis, and particularly if there is a diminution of the visual acuity as measured by the test types. (c) Increasing drowsiness, mental dulness, slow cerebration, disorientation in time and place, and other mental states, come next in importance, even when unsupported by optic changes. (d) Respiratory distress, disturbance of respiratory and cardiac rhythm, especially in extracerebellar cases, are of prime importance. (e) Increase in the severity or frequency of convulsions, deepening paralysis, taken with advancing optic changes, indicate urgency, less so perhaps on their own merits. (f) Unbearable pain in the head may itself call for operative measures. All of these symptoms possess individual importance, but doubly so if supported by a degree of optic neuritis, and call for speedy relief.

25. **Nephroptosis.**—Pardhy discusses this subject in its relation to mental disorders and their treatment. He says that nephroptosis (movable kidney, floating kidney, dropped kidney) may cause serious vascular and ureteral obstruction and interference with the normal function of the kidney, which when often repeated causes varying degrees of dilatation of the calices or pelvis, flattening of pyramids, hydronephrosis, loss of kidney substance, and cystic degeneration. This may lead to auto-intoxication, causing, among other things, destruction or impaired function of the cerebral cells, and mental disorders. It is possible that the local effects of nephroptosis—backache, pain over the distribution of the last dorsal nerve, colitis, constipation, flatulence, etc.—contribute toward bringing on mental disorders. Nephropexy is the proper and rational procedure in cases of mental disorders, when movable kidney is present, and the only contraindications are those to be cited against any major operation. Nephropexy, to be of full benefit, must be performed properly and efficiently.

Pardhy urges that in all patients suffering from mental disorders, a thorough examination should be made to find whether the patient has movable kidney. If found to have nephroptosis, the chances of cure after nephropexy are at least 50 per cent., as a very low estimate. Even if fixing up the kidney does not cure the complaint, it cannot in any sense make the patient worse. The patient should be watched and taken care of for a prolonged period till the cure is established. The poorer class of patients should either be sent to an asylum soon after the operation, or be operated on in an asylum, so that they can be taken care of efficiently. The importance of early diagnosis of movable kidney in cases of mental disorders, and the need of an early nephropexy, are emphasized by Pardhy. The condition of threatening or established mental disorder is so serious from the patient's and from the social point of view that as soon as the diagnosis of associated movable kidneys is made, nephropexy should be performed without delay. In consideration of the serious nature of the complaint, palliative treatment by mechanical appliance, e. g., a kidney belt or corset, should only be resorted to if a major operation is contra-indicated.

### Archives des Mal. de l'Appareil Digestif, Paris

*March, VIII, No. 3, pp. 121-180*

34 Tumors of the Ampulla of Vater. P. Docq and L. van Bever.
35 *Examination of Duodenal Juice for Pancreatic Ferments. (Du chimisme duodénal.) E. Glatz.

35. **Chemistry of the Duodenum.**—Glatz found on ten normal persons and twenty-two with various abdominal affections that when the pancreas was functioning normally the pancreatic ferments could always be discovered in the duodenal juice.

### Archives Mensuelles d'Obstétrique et de Gynécologie, Paris

*March, III, No. 3, pp. 257-352*

36 Serodiagnosis of Pregnancy. (Des ferments protéolytiques antiplacentaires dans le sérum des femmes enceintes.) G. Ecalle, E. Partos and R. d'Ernst.

### Bulletin de l'Académie de Médecine, Paris

*March 31, LXXVIII, No. 13, pp. 491-522*

37 *Intrabronchial Injections of Medicated Oil in Treatment of Gangrene of the Lungs. (De la méthode des injections massives intrabronchiques.) G. Guisez.

37. **Intrabronchial Injection of Drugs in Treatment of Gangrene of the Lungs.**—Guisez describes the technic with which he has injected from 20 to 25 c.c. of medicated oil directly into a bronchus, and states that his ten patients with gangrene of the lungs all recovered under this treatment. The patients had single or double gangrene, with fever and extreme prostration, and the local process rapidly healed up and the expectoration ceased. The experience of others has confirmed this almost specific action in case of gangrene, but tuberculosis is more refractory. Improvement may be realized but not a cure by this means, probably on account of the sclerous tissue that has formed which prevents the access of the medicated oil. He used among other drugs a 5 or 10 per cent. solution of guaiacol in oil.

### Lyon Chirurgical, Lyons

*April, XI, No. 4, pp. 314-424*

38 *Irrigation of the Peritoneum with Ether. P. Santy.
39 Two Cases of Dislocation of the Articulation between the Trapezium and Metacarpal. L. Plisson.
40 The Posterior Marginal Fragment in Fracture of the Tibia. P. Japiot.
41 Visceral Anastomoses with Jaboulay's Button. M. Patel.

38. **Lavage of the Peritoneum with Ether.**—Santy undertook a series of experiments on rabbits to determine the immediate and after-effects of flushing out the peritoneum extensively with ether. He describes the histologic changes and concludes that they are too slight to constitute any danger in the use of the method, but there were immediate effects such as cyanosis, slowing of the respiration and symptoms of intoxication from absorption of the ether which led him to believe that collapse might be caused by too free use of it.

### Presse Médicale, Paris

*April 1, XXII, No. 26, pp. 245-252*

42 *Hypophysis Extract in Gynecology. F. Jayle.

*April 8, No. 28, pp. 265-272*

43 *Diagnosis of Gastric Cancer by Cells Found in Stomach Content. (Le cyto-diagnostic du cancer de l'estomac.) P. Simon and L. Caussade.
44 Bacilli Found in Effusion in Knees in Case of Acute Articular Rheumatism. D. Danielopolu.

42. **Hypophysis Extract in Gynecology.**—Jayle relates ten typical cases in detail out of the fifty in which he has given a systematic course of injections of a solution of desiccated and prepared beef hypophysis (posterior lobe). The immediate results, he says, were excellent, as a rule, in various chronic afebrile gynecologic affections. The effects were most marked in young women with lesions of the ovaries, tubes or peritoneum, mild but persisting; also in cases of climacteric hemorrhage and in cases of periods of congestion in the pelvis without macroscopic lesions. It can also effectually supplement conservative operations, and may answer certain of the indications for radiotherapy and electrotherapy. The mode of action seems complex; there are signs of contraction of the vessels, but there is also evidence that the secreting function of the ovary is modified by the hypophysis extract.

43. **Diagnosis of Gastric Cancer.**—Examination of the cells found in vomit or rinsing water had seldom given reliable information until Loeper and Binet modified the technic. They take the content from the fasting stomach after a brief preliminary rinsing out of the stomach and then pouring in a liter of physiologic salt solution. This is pumped out again at once, centrifuged and examined under the microscope, with or without staining. The fluid does not all come in contact with all the walls of the stomach, as a rule, unless the patient makes an effort to accomplish this by lying down and sitting up several times in succession, with possible cautious kneading of the stomach region. Simon and Caussade give a number of illustrations to show what to look for, and state that in thirteen cases the absence of cancer cells proved the benign character of the stomach trouble, fully confirmed by the course of the cases later, while in twenty-five cases of what proved later to be cancer the findings were invariably positive with one exception, in which the technic was probably at fault. The findings with cancer were positive regardless of the type of malignant disease, and as cancer in the stomach usually ulcerates early, this cytodiagnosis may permit early differentiation.

### Beiträge zur Geburtshilfe und Gynaekologie, Leipsic

*XIX, No. 2, pp. 167-314. Last indexed Jan. 17, p. 244*

45 Various Types of Homologous Reproduction in Plants and Animals. (Homologe Akte und einzelne Arten der Fortpflanzung.) F. A. Kehrer.
46 Bacteriology of the Vagina in the New Born. (Scheidenflora neugeborener Madchen.) G. Schmidgall.
47 Occurrence of Iodin and Chlorin in Human Ovaries. B. Weinberg.
48 The Blood during Delivery and the Puerperium. (Das Blut des Weibes in der Geburt und im Wochenbett.) W. Sieben.
49 Histogenesis of Pseudomucin Ovarian Cystomas. W. Lahm.
50 Rare Deformity. (Agnathus mit Synotie.) K. Hoffmann.
51 Formation of Artificial Vagina. E. Anderes.

### Beiträge zur klinischen Chirurgie, Tübingen

*LXXXVIII, No. 3, pp. 423-748*

52 Experimental Study of Transverse Resection of the Esophagus. H. Fründ.
53 Fate of the Testicle after Removal of Tunica Vaginalis and Albuginea. Hanaoka.
54 Technic for Operations on Aneurysms. C. Stoltz.
55 Hemostasis in Operations on the Liver. (Blutstillung bei Leberoperationen.) K. Borszeky and A. Baron.
56 Roentgen Findings after Exclusion of the Pylorus. T. Barsony.
57 Experimental Pathology of Gastric Ulcer. (Magengeschwür.) A. *Baron.*
58 Primary Trephining for Extraction of Bullet from Brain. C. Ritter.
59 Historical, Experimental and Clinical Study of Operative Treatment of Cavities in the Lungs. (Kavernenchirurgie.) F. Kroh.
60 Technic for Closing Fistulas into Organs. (Neue Verschlussmethode für äussere Hohlorganfisteln.) H. Biesenberger.
61 Correction of Deformed Thumb. (Operatives Verfahren um den von Geburt abnorm stehenden Daumen den andern Fingern gegenüber stellbar zu machen.) H. Biesenberger.
62 Sarcoma after Trauma. K. Hartmann.
63 Typical Fracture of Atrophic Femur. M. Brandes.
64 Tuberculosis of the Stomach. (Zur Pathogenese und Therapie der Magentuberkulose.) K. Keller.
65 Pathogenesis of Fistulas in Side of Neck. (Halsfisteln.) R. Wenglowski.

*LXXXIX, No. 1, pp. 1-290*

66 Goiter. (Das Kropfproblem.) E. Bircher.
67 Goiter Operations. (Ueber 1,400 Strumaoperationen der Krankenanstalt Aarau.) A. Bossart.
68 *Heart Disturbances with Endemic Goiter. W. Bigler.
69 Myoma of the Gastro-Intestinal Tract. H. Hauswirth.
70 Congenital Kidney Defects or Displacement. F. Oehler.
71 Kidney Tumors; Seven Cases. E. Hofmann.
72 Acquired Giant Growth of Right Leg. W. Bigler.
73 *Outcome of Treatment of Varicose Veins by Spiral Incision; Thirty Cases. (Behandlung des varikösen Symptomenkomplexes nach Rindfleisch-Friedel.) F. Meyer.

68. **Heart Disturbances with Endemic Goiter.**—Bigler gives the details of 100 cases saying that deranged heart functioning was evident in 70 per cent. of those examined. In two cases the heart disturbances were unmistakably connected *with iodin treatment. In 43 per cent. there was tremor* which he regards as a manifestation of thyroid intoxication.

73. **Spiral Incision for Varicose Veins.**—Meyer states that recent reexamination showed that only 41.66 per cent. of the eighteen patients with leg ulcers were permanently cured by the spiral incision. But all were promptly and permanently cured in the twenty-four cases in which this operation was done for varicose veins alone. With leg ulcer the lesion and varicose enlargement extend too deep into the tissues to be controlled by the superficial spiral incision.

### Berliner klinische Wochenschrift

*April 13, LI, No. 15, pp. 677-724*

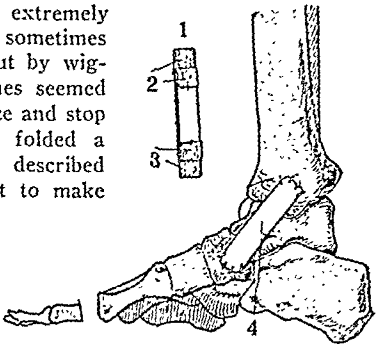
74 *Treatment of Syphilitic Nervous Disease. H. Oppenheim.
75 Fascia and Peritoneum Implant in Treatment of Rectal Prolapse. (Verwendung von frei transplantierten Fascien- und Peritonealstreifen in der Behandlung des Mastdarmvorfalles.) H. Hartung.
76 Operative Treatment of Tuberculous Spondylitis. (Operative *Behandlung der tuberkulosen Entzündung der Wirbelsäule.)* O. Vulpius.
77 Management of Duodenum Stump after Resection of the Stomach. (Zur Frage der Gefahrdung des Duodenalstumpfes bei der Magenresektion Billroth II.) E. Melchior and S. Weil.
78 *Typhoid Bacilli in Blood of Healthy Carrier. E. Ebeling.
79 Modified Technic for Wassermann Reaction. (Erfahrungen mit dem Sachs'schen Cholesterinalkoholextrakt und dem Lesser'schen Aetherextrakt bei der Wassermann'schen Reaktion.) G. Orkin.
80 Electrodes for Electrotherapy. (Neue Elektroden für die gefahrlose Anwendung starker, bes. diathermischer Ströme in der Gynakologie.) M. Amtschislawsky.
81 The Fibers of the Epithelium. (Zur Chemie der Zelle. VI.) P. G. Unna.
82 *Implants of Periosteum and Bone for Correction of Traumatic Deformities. (Periost- und Knochenüberpflanzungen; Vorschlag zur Heilung des Plattknickfusses.) M. Katzenstein.

74. **Treatment of Syphilitic Nervous Affections.**—Oppenheim reports that only 8 patients out of 20 with cerebral syphilis were favorably influenced by salvarsan treatment. In 3 others the condition became aggravated under it. Bene*fit was manifest also in 6 of 15 with spinal syphilis*; in 2 the symptoms grew worse, and no effect was evident in the others. Of the 50 tabetics treated, only 10 showed any benefit; in 11 cases the symptoms rapidly progressed; in 2 of this group atrophy of the optic nerve developed, of which there had been no signs before. In 29 no influence from the salvarsan could be detected or if one symptom improved, others grew worse. The outcome was still less favorable in general paresis; 15 of the 24 in this group showed no effect from the treatment; 6 found their symptoms rapidly growing worse and only 2, or at most 3, showed a remission of their symptoms. No benefit was derived in 2 cases of paralysis agitans, epilepsy, chronic anterior poliomyelitis, and in one case of progressive muscular atrophy. His 2 cases of severe encephalitis following the salvarsan have already been published. One was particularly tragic as a young and talented actress wanted the salvarsan merely as a precautionary measure as she had had intercourse with an infected man. She had no symptoms herself, but after salvarsan she developed complete paraplegia, paralysis of bladder and rectum, decubitus, and optic nerve trouble. He has had no mishaps of this kind in the last year, and none ever terminated fatally.

78. **Typhoid Bacilli in Blood of Carrier.**—Fourteen primary and eighteen secondary cases of typhoid fever, with six deaths, were traced to this healthy carrier, but she had always cheated in sending dejecta for examination so that it was impossible to prove her a dangerous carrier. Finally her blood was examined, and typhoid bacilli were found in it.

82. **Periosteum-Grafting to Remedy Pain or Deformities.**—Katzenstein declares that bone and periosteum grafting operations are becoming routine procedures and restoring many cripples to active life. The method he applied in one case has a future, he thinks. It held the parts as firmly in place as if they had been nailed, but the support was with living engrafted tissue. *Nothing but periosteum will display* such a vital growth when implanted. He utilized this with a strip folded lengthwise, turning the proliferating side inward, leaving it exposed only at the ends. These ends are sutured to the bone to ensure intimate contact while there *is no further contact anywhere with the osteogenetic surface* of the strip.

In the case described a young woman had torn the internal lateral ligament, the consequence being a very painful chronic subdislocation of the foot on the tibia. The calcaneoscaphoid joint was abnormally movable, and every step was extremely painful. The pain sometimes waked her at night, but by wiggling her foot the bones seemed to spring back into place and stop the pain. Katzenstein folded a strip of periosteum as described above and implanted it to make a new ligament, suturing the strip to freshened areas on the malleolus and scaphoid bone, turning in the bone-generating surface except at the ends. The foot was then immobilized in a varus position for seven weeks, after which it seemed to be normal in every respect and the patient has even done mountain climbing without a trace of disturbance on the part of the foot during the nearly three years to date. He has applied the same technic in three cases of severe flat-foot and all functional disturbance was corrected at once. The patients do not even have to wear insoles.



Periosteum-grafting to remedy pain or deformities: 1, periosteum flap folded lengthwise; 2 and 3, osteogenetic layer; 4, new-formed ligament connecting tibia and scaphoid bone.

The same result with flat-foot can sometimes be realized in an easier way by toughening the ligaments so that they no longer stretch to an abnormal extent. He accomplishes this by injecting 1 or 2 c.c. of 4 per cent. formaldehyd directly into the lateral ligament. This tightens up the ligament so much that in one case considerable massage was necessary to restore even normal elasticity. In two cases of extremely painful flat-foot rebellious for months to all measures, this tanning procedure cured at once, and there has been no return of trouble during the two years since. Insoles must be discarded. This method can be applied to all such cases, but it promises success only in the early stages, when the lax stretching of the ligament is what is causing the trouble. Katzenstein gives further an illustrated description of eight cases of deformity of bone in which he implanted an autograft of bone, and always with fine effect. He does not aim to supply a complete substitute for the missing bone, as the small piece of bone plus periosteum engrafted will develop to fit the place in response to the functional demands made on it.

### Deutsches Archiv für klinische Medizin, Leipsic

*CXIV, Nos. 1-2, pp. 1-208. Last indexed April 4, p. 1127*

83 Alternating and Pseudo-Alternating Pulse. H. v. Hoesslin.
84 Functional Testing of Diseased Kidneys. B. Griessman.
85 Testing Kidney Function with Phenolsulphonephthalein and by Schlayer's Method. F. Deutsch and W. Schmuckler.
86 Examining the Activity of the Kidneys by Means of a Test Meal. M. H. Hedinger and Schlayer.
87 Excretion of Sodium Chlorid in Heart Disease. Barantschik.

### Deutsche medizinische Wochenschrift, Berlin

*April 9, XL, No. 15, pp. 737-784*

88 Treatment of Acute Threatening Conditions in Tropical Diseases. (Akut bedrohlicher Zustände bei Tropenkrankheiten.) P. Mühlens.
89 Simple and Rapid Method for Quantitative Estimation of Uric Acid in Blood; Only 0.1 c.c. Serum Required. (Quantitative Schätzung der Harnsäure im Blute.) T. Brugsch and L. Kristeller.
90 Specific Nature of Protective Ferments in Serodiagnosis. (Verhalten des Blutserums Gesunder und Kranker gegenüber Plazen*taeiweiss.) A. E. Lampé and R. Fuchs.*

91 *Reducing the Size of the Carotid Arteries in Epilepsy. . (Verengerung der Karotiden bei Epilepsie.) Momburg.
92 *Familial Syphilis and Keratitis. F. Lesser and P. Carsten.
93 No Benefit from Vaccine Therapy for Gonorrhea in Children. R. Hamburger.
94 Test for Coagulating Time of the Blood. (Einfache Methode zur Bestimmung der Gerinnungszeit des Blutes.) L. Loewenthal.
95 Malaria in Southeastern Germany. Malisch.

91. **Compression of Carotid Arteries to Arrest Epileptic Seizure.**—Momburg was led to try this measure from observation of the influence on the brain of ligation of the carotids. With thumb and finger he compressed both these arteries when a man fell in an epileptic seizure. The effect was striking, the convulsive movements ceased, a deep respiration followed, and the man opened his eyes, apparently conscious. Four men then took up the epileptic to carry him into a house but at once the symptoms reappeared, so Momburg applied compression anew to the carotids with both thumbs. Again the convulsive movements ceased, the man drew a deep breath, opened his eyes and responded to questions. Compression of the carotids for this purpose was first advocated by Reimer about 1855; Corning applied it later, and Volland at Momburg's instigation has applied it repeatedly to arrest seizures among the epileptics in his charge.

The assumption seems justified that the peculiar excitability of the brain responsible for the seizure can be reduced by diminishing the supply of blood to the brain. The next step is to seek permanent relief by definitely shutting off part of the blood supply, and Momburg accomplished this in two cases by tying a wire around one artery only just tight enough to partially obstruct the flow of blood through it, with a temporary silk thread for the other artery. Neither of the patients has had headache since and one had two brief seizures a week later but none since. The other had been having a seizure every two or three weeks for six years, but has had none since this operation a month ago. He adds that there is nothing to suggest any untoward byeffects from the procedure in any way. Collaterals will scarcely develop so long as the blood-supply is sufficient for the nourishment of the cells.

92. **Familial Syphilis in Connection with Keratitis.**—Lesser and Carsten give the family records in thirty-five cases of parenchymatous keratitis. They show that it is exclusively of syphilitic nature; tuberculosis does not even favor its development. The records further show that twice as many of the offspring develop signs of the inherited taint later as would be surmised from the findings during the first few years after birth. Mothers with a positive Wassermann are liable to bear syphilitic children even from six to twelve years after infection. The positive Wassermann of the fathers seems to be less baleful for the offspring.

### Deutsche Zeitschrift für Chirurgie, Leipsic

*CXXVII, Nos. 5-6, pp. 415-642*

96 *Acute Progressive Encephalitis and Meningitis. Borchard.
97 Traumatic Aneurysms in the Balkan Wars. V. Subbotitch.
98 Foreign Bodies in the Duodenum. E. Melchior.
99 Ileus from Abnormal Fold in the Peritoneum. (Plica diaphragmatica ovarii als Ursache einer Darminkarzeration.) H. Andree.
100 Frost Gangrene. (Echte Erfrierungsgangränen im bulgarisch-türkischen Krieg.) A. W. Meyer and R. Kohlschütter.
101 *Alkaline Treatment of Septic Processes. Vorschütz.
102 Direct Transfusion of Blood. R. Góbell and A. Poggemann.
103 Volvulus of the Stomach. T. Kocher.
104 Successful Suture of Gunshot Wounds of the Heart. (Geheilter Fall von Schussverletzung des rechten Ventrikels.) Vorschütz.

96. **Acute Encephalitis.**—Borchard here discusses the three clinical types, acute progressive encephalitis, acute circumscribed meningitis and meningo-encephalitis, showing how all present the same clinical picture of progressive focal symptoms suggesting the necessity for operative intervention and liable to respond favorably to it. Even without infection, traumatic encephalitis seems to display a progressive tendency. The focal symptoms do not develop so suddenly as with a destructive injury of the brain or a traumatic hemorrhage; they are seldom manifest before the second day; there may be merely signs of irritation up to actual paralysis. There is generally a pronounced progressive course, but it may stop suddenly and retrogress entirely, with or without treatment, even when infection is installed. The progressive course does not necessarily indicate infection. Symptoms of cortical epilepsy have been noted in some cases, but the motions were not so rapid as in epilepsy and half of them occurred still slower. In a case reported in detail two epileptic convulsions preceded by twelve hours the actual focal symptoms. The regularly increasing intensity of the focal symptoms is the characteristic feature of these cases, in connection with a history of trauma, infection or intoxication. There is generally a hint, at least, of rigidity of the back of the neck. Vertical nystagmus is a sign that the inflammation has extended inward and the prognosis becomes bad at once. Normal temperature is no sign that infection is not already at work. No tissue in the body is so sensitive as the brain to disturbances in circulation, and prompt trephining and draining provide conditions which permit the parts to heal. In the case reported the patient promptly recovered, as also in a second case in a syphilitic. The dura not only has to be slit, but the intrameningeal spaces must be drained and adhesions broken up. This permits the dura to cling close so no space is left for fluid to collect further.

101. **Alkaline Treatment of Septic Processes.**—Vorschütz says that administration of an alkali whips up the cells, causes an edematous loosening up of the tissues, augments the secretion of urine by its action on the kidneys, raises the blood-pressure, and increases the appetite. The cell is whipped up in its work of metabolism and of elaboration of antitoxins; consequently the alkali does no good unless the cell is capable of responding. He gives the details of nine cases and considerable experimentation on animals to demonstrate its action and also to prove that a deficiency of alkali is responsible for defective production of antibodies. By this means he is convinced that he has tided certain patients past the danger stage who would have been lost without it. He mixed 10 or 20 gm. of sodium bicarbonate in a bottle of seltzer water and had the patient drink this during the day. Children took half this amount. Some of the patients took this for weeks without disturbances; a healthy stomach rebels at these large doses of an alkali. Sometimes pain in the stomach compelled suspension for a day or so, but diarrhea was regarded as useful unless too profuse. The alkali can be given by proctoclysis or by intravenous infusion. The cases reported were severe septic processes, osteomyelitis, scarlatinal nephritis with abscess, etc., and all recovered.

### Jahrbuch für Kinderheilkunde, Berlin

*April, LXXIX, No. 4, pp. 385-506*

105 Experimental Study of the Effects of Thymus Extract. R. Fischl. (To be continued.)
106 There Seems to Be a Family Predisposition to Scarlatinal Nephritis. P. Bode.
107 Connection between Rachitis and Spasmophilia. E. Aschenheim.

### Medizinische Klinik, Berlin

*April 5, X, No. 14, pp. 573-620*

108 *Metabolism in Rachitis. (Stoffwechselprobleme der Rachitis.) P. Grosser.
109 Treatment of Trigeminal Neuralgia by Destruction of Gasserian Ganglion by Intracranial Injections. F. Härtel.
110 Salvarsanized Serum. (Experimentelle und klinische Untersuchungen mit Salvarsan-Serumlosungen.) B. Spiethoff.
111 *Roentgenotherapy of Myoma. (Myomherz und Tiefentherapie.) J. Mahler.
112 The Scientific Basis for Balneotherapy. (Balneotherapie; physiologische Voraussetzungen; klinische Anwendungsformen.) Landouzy and J. Heitz. Commenced in 13.
113 Technic and Indications for Obstetric Forceps. F. Heimann.

*April 12, No. 15, pp. 621-664*

114 Bladder Tumors. (Harnblasengeschwülste.) L. Casper.
115 *Summation and Enhancing of Potency of Drugs by Combining Them. (Wirkung der Arzneigemische.) E. Bürgi. Commenced in No. 14.
116 *Asthenic Infantilism. (Der asthenische Infantilismus des weiblichen Geschlechts und seine Bedeutung für die ärztliche Praxis.) H. Albrecht.
117 *Artificial Sterilization of Women. A. Sarkissiantz.
118 Periodical Recurrence of Migraine. (Migräne als Rekreationsphanomen und ihr prädilektives Auftreten an bestimmten Tagen der Woche.) R. Traugott.

119 *Hemorrhoids Result of Stagnation of Feces in Rectum. (Aetiologie und Behandlung der Hämorrhoidalblutungen.) L. v. Aldor.
120 Football Paralysis, and Allied Conditions. (Physiologische und pathologische Bewegungsfragen.) M. Benedikt.

108. **Metabolism in Rachitis.**—Grosser's long article shows how little we really know in regard to the nature of rachitis, and the difficulties connected with research in this line. He reports extensive work of his own. One practical outcome of it is that besides the specific beneficial action of phosphorus plus cod liver oil, a similar beneficial action is apparent from subcutaneous injection of calcium glycerophosphate. Both this and the phosphorus-cod liver oil seem to exert a specific action on the lime metabolism in rachitis: None of the other drugs or combinations tested displayed this action to any degree.

111. **Myoma Heart.**—Mahler concludes from his analysis of his experience that uterine myomas are accompanied at first by merely functional disturbances on the part of the heart, but hypertrophy and dilatation of the heart soon follow. The heart disturbances resemble in many points those with exophthalmic goiter. It seems probable that the altered ovarian secretion has a directly injurious action on the heart, plus an indirect action from the upset balance in the ductless-gland system. Exposure of the ovaries to the Roentgen rays checks their perverted function and gives the cardiovascular system a chance to recuperate. He has treated fifteen myoma patients in this way, and regards the results as very satisfactory; the heart subsided more or less completely to normal size and functioning. He also reports excellent results in various other gynecologic cases.

115. **Modification of Action of Drugs by Combining Them.**—Burgi has continued his research in this line since his earlier communication summarized in The Journal, 1911, lvi, 1862. He draws a sharp distinction between mere summation of the effects of combined drugs and enhancing of the potency of each by their combination. It seems to be a law, he says, that combining drugs of the same series which have the same pharmacologic point of attack, merely adds by summation of their individual actions. On the other hand, drugs of the same series but which have separate pharmacologic points of attack sometimes seem to have the potency of each enhanced when they are combined in certain proportions. He mentions as an example of this that belladonna preparations have no narcotic action alone; if the dose is large enough to induce anesthesia, other symptoms are produced which prevent a narcotic influence. But if a small amount of some belladonna preparation is mixed with one of the ordinary narcotics, the action of the latter is materially enhanced. He calls attention also to the curious fact that the combination of two drugs, each in half the dose found to be the limit dose for general anesthesia, showed that the potency of each was somewhat weakened by the combination, but then, if the dose of each was reduced still smaller, the potency of the mixture increased, and this was manifest down to extremely small doses. These experiences show, he reiterates, that with the actual limit dose we have to reckon with a reversal of the action of the drug. He found that the various organ extracts acted on the heart each in a different way, each influencing a different segment of the heart, so that there can be no question of summation or enhancing the potency by combining organ extracts.

116. **Asthenic Infantilism.**—Albrecht applies this term to describe a constitutional anomaly consisting in the persistence of infantile and juvenile forms of growth accompanied by a functional weakness and special readiness of the organs involved to yield to disease. The infantilism is the morphologic and the asthenia the functional manifestation of constitutional inferiority. But the infantile and asthenic phenomena on the part of the nervous system and the mind are what dominate the clinical picture, as a rule, especially the neurasthenia, the psychasthenia and the extreme sensibility of the sympathetic system. He says that women of this type form the majority of our patients—1,000 of the 6,018 gynecologic patients in his service, and fully 32 per cent. of the women that came to the dispensary. It is these women of this asthenic infantile type that go from doctor to doctor, from one specialist to another, from internists to surgeons—each applying some different treatment but all failing to cure. The main point in these cases is to bear in mind that large numbers of these patients find that under conservative measures and psychotherapy all their disturbances disappear, for a long time at least, without any local treatment and without any change in the objective findings. The special characteristic of the cases is that periods of complete clinical health alternate abruptly with periods of severe disturbances—the objective findings unmodified throughout.

117. **Artificial Sterilization of Women.**—This communication advocates severing the tubes between two ligatures, working through an incision in the roof of the anterior vagina. This is done at the same sitting as the evacuation of the uterus, when the pregnancy has not passed beyond four and a half months, and vaginofixation concludes the whole.

119. **Hemorrhoidal Hemorrhages.**—Aldor presents theoretical and clinical evidence to prove that hemorrhoids are as a rule not a local affection of the veins in the region, but are the result of a hemorrhagic chronic or repeatedly recurring inflammation of the rectum, and that this proctitis is the direct result of constipation restricted to the rectum. This part of the bowel has had its sensibility deadened so that residual feces stagnate there and set up inflammation even when the bowel functioning is supposed to be normal. Evacuation of the rectum and local treatment of the proctitis will cure the hemorrhoids, along with the proctitis. But constant vigilance is necessary and a diet as free from residue as possible—the reverse of the diet for ordinary constipation.

### Münchener medizinische Wochenschrift

*April 7, LI, No. 14, pp. 745-800*

121 *Salvarsanized Serum. (Salvarsanserum.) A. Stühmer.
122 *Salvarsanized Serum in Syphilis of the Nervous System. (Zur Behandlung der Syphilis des Zentralnervensystems nach Swift und Ellis.) K. Eskuchen.
123 *Importance for Diagnosis and Prognosis of Repeated Local Tuberculin Reactions. Pringsheim.
124 Silicic Acid Metabolism in Cancer and Tuberculosis. (Kieselsaurestoffwechsel bei Krebs und Tuberkulose und seine Bedeutung für die Therapie der Tuberkulose.) H. Kahle. (Zur Siliziumbehandlung der Tuberkulose.) R. Rössle.
125 Bolus Alba in Treatment of Cholera. (Ueber Cholerabehandlung und Choleraprophylaxe auf Grund meiner Erfahrungen in Nisch und Belgrad.) J. Stumpf.
126 Roentgenography of the Liver and Spleen. (Leber und Milz im Röntgenbild.) C. Loffler.
127 *Serodiagnosis of Pregnancy. (Weitere Untersuchungen über das Auftreten blutfremder proteolytischer Fermente im Blute Schwangerer. Untersuchung des Dialysates mittels Ninhydrin und gleichzeitiger Feststellung seines Stickstoffgehaltes mittels Mikroanalyse.) E. Abderhalden and A. Fodor. (Biologische Prüfung der Ergebnisse des Dialysierverfahrens.) E. Abderhalden and L. Grigorescu. (Verwertbarkeit der Abderhaldenschen Reaktion in der Diagnose der Schwangerschaft.) E. Schiff.
128 Treatment of Furunculosis in Infants with Actual Cautery. (Behandlung der Furunkulose im Säuglingsalter mittels Thermokauter.) M. E. Schubert.
129 *Diagnosis of Cerebral Hemorrhage. (Hirnblutung.) J. Mendl.

121. **Salvarsanized Serum.**—Stühmer has been studying on rabbits how long the therapeutically active substances in salvarsan can be demonstrated in the serum after intravenous injection, and whether these substances are from the drug or are antibodies generated in consequence of its presence. He took nagana for the disease to be investigated, as syphilis in rabbits is irregular. He found that as late as seven days after the injection active substances could be demonstrated in the serum, both by chemical and biologic tests, the latter showing the presence of protecting and curing substances in respect to mice inoculated with the same trypanosomes. The facts observed show that it can not be a question of relics of the salvarsan alone; the products of its oxidation evidently participate. He says that this research was suggested by Swift and Ellis' work.

122. **Salvarsanized Serum.**—Eskuchen applied Swift and Ellis' technic in nine cases of tabes, two of cerebrospinal

syphilis and five of general paralysis, a total of sixty-eight injections. The objective findings did not seem to be modified, but the subjective symptoms were promptly and materially improved and the course of the disease seemed to be arrested.

123. **Repeated Local Tuberculin Reactions as Index to Diagnosis and Prognosis.**—Pringsheim has been conducting on 125 adults a series of experiments like those Bessau and Schwenke have been conducting on large numbers of children, testing repeatedly the local reaction to intradermal injection of tuberculin in three strengths (1:100; 1:1,000 and 1:10,000). In each case 0.1 c.c. of the weakest solution was injected in the thigh and a week later a similar injection was made in the other thigh. If both tests were negative, the procedure was repeated with the medium strength, and if this was negative, the strongest solution was then used. The size of the papule and area were measured and the redness and hardness noted each twenty-four hours for eight days. Pringsheim's patients were men between 20 and 60 in the city hospital for various troubles, and only one of the entire 125 failed to give a positive reaction. The findings with these tests confirm the importance of the procedure as a guide not only to diagnosis but for the prognosis. A marked local reaction shows that the tuberculosis is being vigorously combated in the organism, while a negative is a sign that the affection is slight and healing or else that the organism has given up the struggle and the tuberculosis has got the upper hand. Every one of the men showing increased local reaction has improved materially since these tests were applied, while of those showing no increase in the reaction 7.7 per cent. have died; in 7.8 per cent. the tuberculosis is stationary and only 59.1 per cent. show any signs of improvement.

127. **Serodiagnosis of Pregnancy.**—Abderhalden and Fodor here announce that besides the optic and ninhydrin dialysis methods for determination of the protective proteolytic ferments in the blood of pregnant women, they have worked out a third method by determination of the nitrogen in the dialysate. Their tables show concordant findings with these various technics. The ferments can be demonstrated also by the refractometer, the ultramicroscope, polarization, etc., and by stains.

129. **Diagnosis of Cerebral Hemorrhage.** — Mendl has noticed that there were marked hyperemia and a tendency to congestive seborrhea on the side of the face and scalp corresponding to the developing hemorrhage in the brain. The hair on that side also stands up, and it is impossible to make it lie smooth. The hyperemia in one side of the face may yield to pallor and a distressed expression, and there may be sensations of oppression in the heart region. These findings may persist for hours before there are other signs of the hemorrhage in the brain. The spastic contraction of the muscles causing the hair to "stand up on end" is a grave sign; he found it only in the cases which had an unfavorable outcome. It sometimes preceded the cerebral hemorrhage by several hours. It is possible, he suggests, that prompt and copious venesection might ward off the cerebral hemorrhage when this spastic contracture of the muscles involved shows the influence of substances from the crushed brain tissue which have entered the blood.

### Wiener klinische Wochenschrift, Vienna

*April 9, XXVII, No. 15, pp. 405-452*

130 Ultimate Outcome of Operative Treatment of Mammary Cancer. (Operative Therapie des Brustdrüsenkrebses und deren Dauererfolge.) V. Lazarevic.

131 Means to Ensure Continence after Operations for Rectal Cancer. K. Goldschmied.

132 Influence of Menstruation on Sugar Content of the Blood. H. Kahler.

133 Radium Treatment of Uterine Cancer. R. Kohler and O. Schindler.

134 Case of Periodical Swelling of the Joints. (Hydrops articulorum intermittens.) A. Pulawski.

135 Roentgen Exposures of the Ovaries and Exophthalmic Goiter: Necessity for Discrimination as to Functioning of Different Ductless Glands. K. Wagner.

### Zeitschrift für Urologie, Berlin

*April, VIII, No. 4, pp. 241-352*

136 Closed Pyonephrosis. (Geschlossene Pyonephrosen.) R. Lichtenstern.

137 Hematuria after Large Doses of Hexamethylenamin: Four Cases., (Hamaturien nach grossen Urotropingaben.) L. Simon.

138 Importance of Pancreas Disease for Surgery of the Urinary Passages. E. R. W. Frank.

### Zentralblatt für Chirurgie, Leipsic

*April 11, XLI, No. 15, pp. 625-672*

139 *Transplanted Muscles with Nerves. (Hyperneurotisation; muskulare Neurotisation; freie Muskeltransplantation.) P. Erlacher.

140 Enlarged Lymph-Nodes in the Axilla as Sign of Apical Process. (Axillare Lymphknoten und Lungentuberkulose.) Wieting.

141 Atropin as Aid in Operations on the Chest. A. Grave.

142 Device for Slow Aspiration of Effusions. (Einfache und sparsam arbeitende Vorrichtung zum Absaugen von Körperflüssigkeiten.) W. Hartert.

139. **Transplanting Nerves with Muscles.**—The experiments on animals reported showed that skilfully placed nerve fibers regenerated and grew as well as the muscle fibers in the implants.

### Zentralblatt für Gynäkologie, Leipsic

*April 11, XXXVIII, No. 15, pp. 545-584*

143 Severe Hemorrhage from Atony of the Uterus Developing Five Hours after Expulsion of Placenta Preceded by Injection of Hypophysis Extract. (Hypophysenextrakt und Atonia uteri.) C. W. Bischoff.

### Gazzetta degli Ospedali e delle Cliniche, Milan

*XXXV, Nos. 40-41, pp. 417-440*

144 The Albumin Reaction in the Sputum of Not Much Diagnostic Import. (L'albumino-reazione.) A. Fantoni.

145 Symptoms of Tumors in the Cerebellum. Greggio.

146 Movable Area of Dulness with Non-Adherent Ovarian Cysts Simulating Tuberculous Peritonitis. P. Azara.

### Riforma Medica, Naples

*April 4, XXX, No. 14, pp. 365-392*

147 Glycosuria Follows Injection in Rabbits of Extract of the Celiac Plexus. (La glicosuria celiaca.) F. Galdi.

148 Reaction of the Blood Marrow to Injection in Animals of Thyroid and Hypophysis Extract and Epinephrin. G. Ollino. Commenced in No. 13.

149 Manifestations of Malaria in the Skin. (Manifestazioni cutanee della malaria, con particolare riguardo a una forma di ectima.) L. Chimisso. Commenced in No. 13.

### Brazil-Medico, Rio de Janeiro

*March 22, XXVIII, No. 12, pp. 113-122*

150 Non-Identity of Ceylon and Brazil Anchylostoma. (Ainda sobre "anchylostoma braziliense"—Gomes de Faria, 1910.) G. de Faria.

151 Pediatrics and Infant Welfare Work. (Hygiene infantil.) L. Barbosa. Commenced in No. 11.

### Pediatria, St. Petersburg

*VI, No. 1, pp. 1-80. Last indexed March 21, p. 976*

152 *Relations between Orthostatic Albuminuria and Tuberculosis. P. Reyher.

153 Prophylaxis of Diphtheria. I. Bomshtein.

154 Results of Schloss' Mixture for Children in Dispensary Practice. M. S. Katznelson.

*No. 2, pp. 81-160*

155 Defective Growth of Bones. (Osteogenesis imperfecta.) I. A. Schabad.

156 Streptococcus Sepsis in Scarlet Fever; Recovery. O. I. Moltchanoff.

152. **Connection Between Orthostatic Albuminuria and Tuberculosis.**—Reyher gives the details of twenty cases of orthostatic albuminuria in which continued supervision over the children revealed underlying tuberculosis in every case.

### Hygiea, Stockholm

*LXXVI, No. 6, pp. 321-384*

157 *Case of Acute Hemorrhagic Encephalitis in the Pons with Fatal Hemorrhage. S. Berg.

158 The Cutaneous Thermic Sense. (Histofysiologiska Studier över temperatursinnena i huden hos människan.) G. Häggqvist.

157. **Acute Hemorrhagic Encephalitis.**—A young woman hit her head in falling on the ice and for five years thereafter had attacks of severe headache about once a year. She was otherwise healthy until she developed signs of acute encephalitis and died the third day in coma. Necropsy showed multiple hemorrhages in the pons but no bacteria could be found and nothing pathologic was found elsewhere.

# THE ATLANTIC CITY SESSION

AMERICAN MEDICAL ASSOCIATION, SIXTY-FIFTH ANNUAL SESSION, ATLANTIC CITY, N. J., JUNE 22-26, 1914

## OFFICIAL CALL

### TO THE OFFICERS, FELLOWS AND MEMBERS OF THE AMERICAN MEDICAL ASSOCIATION

The sixty-fifth annual session of the American Medical Association will be held at Atlantic City, N. J., June 22-26, 1914.

The House of Delegates will convene at 10 a. m., Monday, June 22. In the House the representation of the various constituent associations for 1914 is as follows:

| | | | |
|---|---|---|---|
| Alabama | 3 | New Hampshire | 1 |
| Arizona | 1 | New Jersey | 3 |
| Arkansas | 2 | New Mexico | 1 |
| California | 3 | New York | 11 |
| Colorado | 2 | North Carolina | 2 |
| Connecticut | 2 | North Dakota | 1 |
| Delaware | 1 | Ohio | 6 |
| District of Columbia | 1 | Oklahoma | 2 |
| Florida | 1 | Oregon | 1 |
| Georgia | 3 | Pennsylvania | 9 |
| Idaho | 1 | Rhode Island | 1 |
| Illinois | 9 | South Carolina | 1 |
| Indiana | 4 | South Dakota | 1 |
| Iowa | 3 | Tennessee | 2 |
| Kansas | 2 | Texas | 5 |
| Kentucky | 4 | Utah | 1 |
| Louisiana | 2 | Vermont | 1 |
| Maine | 1 | Virginia | 3 |
| Maryland | 2 | Washington | 2 |
| Massachusetts | 5 | West Virginia | 1 |
| Michigan | 4 | Wisconsin | 3 |
| Minnesota | 2 | Wyoming | 1 |
| Mississippi | 2 | Canal Zone | 1 |
| Missouri | 5 | Hawaii | 1 |
| Montana | 1 | Philippine Islands | 1 |
| Nebraska | 2 | Porto Rico | 1 |
| Nevada | 1 | | |

The fifteen scientific sections of the American Medical Association, the Medical Department of the Army, the Medical Corps of the Navy and the Public Health Service are entitled to one delegate each.

The general meeting, which constitutes the opening exercises of the Scientific Assembly of the Association, will be held at 10:30 a. m., Tuesday, June 23. The various sections will meet Tuesday at 2 p. m., and subsequently, according to their programs, on Wednesday and Thursday, June 24 and 25, and in some cases also on Friday morning, June 26.

The Registration Department will be open from 8:30 a. m. until 5:30 p. m., on Monday, Tuesday, Wednesday and Thursday, June 22, 23, 24 and 25, and from 9 to 10 a. m., on Friday, June 26.

John A. Witherspoon, President.
Alexander R. Craig, Secretary.

## MEMBERS OF THE HOUSE OF DELEGATES

### A Preliminary Roster of the Legislative Body of the American Medical Association

The list of members of the House of Delegates for the session is incomplete, as a number of state societies are yet to hold their meetings at which delegates will be elected. The following is a list of the holdover delegates and of the newly elected members who have reported to The Journal in time to be included:

### *STATE DELEGATES*

#### ALABAMA

E. D. Bondurant, Mobile.
H. T. Inge, Mobile.

#### ARIZONA

John E. Bacon, Miami.

#### ARKANSAS

William V. Laws, Hot Springs.

#### CALIFORNIA

George Hare, Fresno.
V. G. Vecki, San Francisco.
H. Bert Ellis, Los Angeles.

#### COLORADO

W. A. Jayne, Denver.
L. H. McKinnie, Colorado Springs.

#### CONNECTICUT

D. Chester Brown, Danbury.
E. J. McKnight, Hartford.

#### DELAWARE

Henry J. Stubbs, Wilmington.

#### DISTRICT OF COLMBIA

G. Wythe Cook, Washington.

#### GEORGIA

M. A. Clark, Macon.

#### IDAHO

John N. Alley, Lapwai.

#### ILLINOIS

A. M. Harvey, Chicago.
A. M. Corwin, Chicago.
J. A. Koch, Quincy.

#### INDIANA

F. B. Wynn, Indianapolis.
C. S. Bond, Richmond.
J. Rilus Eastman, Indianapolis.
Edwin Walker, Evansville.

#### IOWA

J. C. Rockafellow, Des Moines.

#### CANAL ZONE

T. W. Earhart, Ancon.

#### KANSAS

George M. Gray, Kansas City.

#### KENTUCKY

J. W. Kincaid, Catlettsburg.
A. T. McCormack, Bowling Green.

#### MARYLAND

Hugh H. Young, Baltimore.

#### MASSACHUSETTS

Hugh Cabot, Boston.
C. P. Hooker, Springfield.
J. B. Blake, Boston.
H. G. Stetson, Greenfield.
L. F. Woodward, Worcester.

### MICHIGAN

C. E. Boys, Kalamazoo.
F. C. Warnshuis, Grand Rapids.
L. J. Hirschman, Detroit.
E. T. Abrams, Dollar Bay.

### MINNESOTA

W. L. Palmer, Albert Lea.
J. W. Andrews, Mankato.

### MISSISSIPPI

S. W. Glass, Lyon.
L. C. Feemster, Tupelo.

### MISSOURI

Robert M. Funkhouser, St. Louis.
E. J. Goodwin, St. Louis.

### MONTANA

Le Roy Southmayd, Great Falls.

### NEBRASKA

A. R. Mitchell, Lincoln.

### NEVADA

B. F. Cunningham, Reno.

### NEW JERSEY

W. S. Lalor, Trenton.
Linn Emerson, Orange.
Edward Guion, Atlantic City.

### NEW MEXICO

William R. Tipton, E. Las Vegas.

### NEW YORK

Henry L. Elsner, Syracuse.
Floyd M. Crandall, New York.
Edgar A. Vander Veer, Albany.
Wesley T. Mulligan, Rochester.
John C. Polak, Brooklyn.
S. W. S. Toms, Nyack.

### NORTH CAROLINA

J. Howell Way, Waynesville.
H. A. Royster, Raleigh.

### NORTH DAKOTA

James Grassick, Grand Forks.

### OKLAHOMA

J. H. White, Muskogee.

### OREGON

Walter T. Williamson, Portland.

### PENNSYLVANIA

Thomas D. Davis, Pittsburgh.
William T. Hamilton. Philadelphia.
John B. McAlister, Harrisburg.
W. Rowland Davies, Scranton.
Americus R. Allen, Carlisle.
J. Montgomery Baldy, Philadelphia.
Herbert B. Gibby, Wilkes-Barre.
Luther B. Kline, Catawissa.
Adolph Koenig, Pittsburgh.

### RHODE ISLAND

John W. Keefe, Providence.

### SOUTH CAROLINA

Edgar A. Hines, Seneca.

### TEXAS

Holman Taylor, Ft. Worth.
C. A. Smith, Texarkana.
Clay Johnson, Ft. Worth.

### UTAH

Sol G. Kahn, Salt Lake City.

### VERMONT

C. H. Beecher, Burlington.

### VIRGINIA

J. Shelton Horsley, Richmond.

### WASHINGTON

L. L. Love, Tacoma.

### WISCONSIN

J. J. McGovern, Milwaukee.
Rock Sleyster, Waupun.

### WYOMING

M. A. Newell, Sheridan.

## *DELEGATES FROM THE SECTIONS*

### PRACTICE OF MEDICINE

Ray L. Wilbur, San Francisco.

### SURGERY

J. N. Jackson, Kansas City, Mo.

### OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY

R. R. Smith, Grand Rapids, Mich.

### OPHTHALMOLOGY

Melville Black, Denver.

### LARYNGOLOGY, OTOLOGY AND RHINOLOGY

Chevalier Jackson, Pittsburgh, Pa.

### DISEASES OF CHILDREN

J. P. Sedgwick, Minneapolis.

### PHARMACOLOGY AND THERAPEUTICS

Ray L. Wilbur, San Francisco.

### PATHOLOGY AND PHYSIOLOGY

Richard M. Pearce, Philadelphia.

### STOMATOLOGY

G. V. I. Brown, Milwaukee, Wis.

### NERVOUS AND MENTAL DISEASES

C. Eugene Riggs, St. Paul, Minn.

### DERMATOLOGY

William A. Pusey, Chicago.

### PREVENTIVE MEDICINE AND PUBLIC HEALTH

M. Smith, Little Rock, Ark.

### GENITO-URINARY DISEASES

V. D. Lespinasse, Chicago.

### HOSPITALS

Fred A. Washburn, Boston.

### ORTHOPEDIC SURGERY

John Ridlon, Chicago.

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# THE CHARMS OF THE CONVENTION CITY

**A Descriptive Article from the Committee on Arrangements of This Queen of Resorts**

The varied and unique charms of this city by the sea cannot be set down in a few desultory paragraphs, and hardly with a facile pen backed by the eloquence of a Cicero. Unique in climate, environment and situation, Atlantic City makes an appeal to persons of widely varied interests and inclinations. Its dry atmosphere, its surf bathing, its gay and picturesque Boardwalk with multitudinous attractions and amusements, and its hotel accommodations make it one of the greatest convention cities in the world. The advantages of holding a convention in Atlantic City may be understood when it is stated that the attendance at conventions held here is always greater than at the places at which preceding meetings were held. In some cases the increase is from 10 to 20 per cent., in most cases from 30 to 50 per cent., while it has occasionally been higher. No European resort is said to compare with it in natural advantages. One of the show places of America, it is at the same time the finest health and pleasure resort in the world. Those who have been here always want to come again, and those who have not are eager to see for themselves what constitutes the charm of this great meeting-place.

### HOTELS

There are more than 100 large hotels and 900 smaller ones. Besides these, numerous boarding-houses cater to the comfort of the visiting public. Atlantic City is in a class with New York, Boston and Chicago in the superiority of its hotel accommodations, and the beach-front hotels are equal to those anywhere in appointments, cuisine and service. Many of these hotels are palaces in appointments and furnishings, maintain splendid orchestras and vie in securing the comfort of their guests. Atlantic City is fortunate in its proximity to three great cities. There is an excellent train service to these points and through them to all points throughout United States and Canada.

### CLIMATE AND SANITATION

The city is situated on an island 10 miles long and less than a mile in width. The exceptional purity of the air and the dry fogs for which the place is noted have undoubted curative qualities, as the discerning physician will quickly observe. The healing powers of brine bathing—in summer on the humanity-crowded beach, and in winter through the numerous bathing establishments—are already well known to most persons.

The climate is dry and temperate, the average rainfall being 30 inches annually, and the average temperature 51.6. The soil is sandy and porous, readily absorbing the rainfall. The broad, safe beach, with an absence of shifting sands, is an ideal play place for the 150,000 who in summer throng in jubilant masses into the sea. It is said to be the most perfect bathing beach on the Atlantic coast. The climatic conditions are thus unsurpassed and ideal. In thirty-nine years Atlantic City has had an average of only two days in each year in which the temperature was 90 degrees or over. In winter the Gulf Stream modifies the surrounding salt water and keeps up a temperature of very moderate average; in summer the prevailing winds are from the south.

In brief, the climate of Atlantic City is adapted to almost every condition that is brought to the attention of the average practitioner, but it is particularly beneficial in certain ailments. As a place for convalescents to recuperate after an operation, or for recovery after a wasting illness, it is ideal. It has long been a resort for hay-fever patients, suggested as equal to an ocean trip without that dread of all travelers, seasickness. The patient may sit out on the piers, reading or writing and absorbing the pure air, with no fear that some wandering pollen may be wafted toward him.

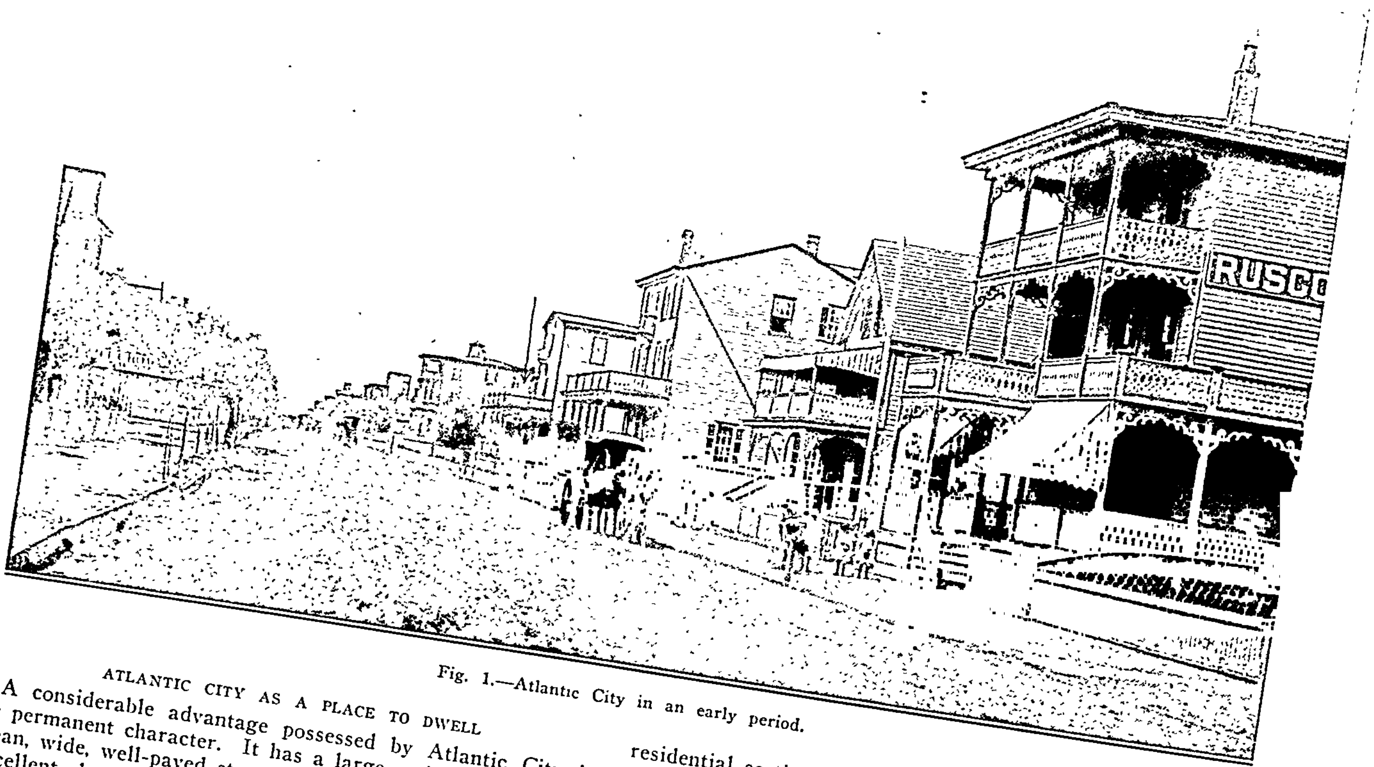

Fig. 1.—Atlantic City in an early period.

### ATLANTIC CITY AS A PLACE TO DWELL

A considerable advantage possessed by Atlantic City is its permanent character. It has a large resident population, clean, wide, well-paved streets, good marketing facilities, an excellent electric-light system, and everything, in short, that goes with a large city except great manufacturing establishments and factories. All who visit Atlantic City know of its famous Boardwalk, its luxurious hotels and its grand beach, but there are many who have yet to learn that one of the most attractive features of the "World's Playground" is comprised in the thousands of comfortable homes within its borders.

Atlantic City is an ideal place in which to "rest, recuperate and recreate," but above all it is a model location for permanent residences. From whatever point of view the subject be considered, whether of hygiene, convenience, comfort or economy, Atlantic City has advantages to offer that cannot be found elsewhere. Each year such benefits are coming to be more and more recognized, and because of them, in an eminent degree, the population of the city has increased from about twelve thousand in 1890 to over fifty-five thousand in 1914, the latter figures being accepted by the United States Treasury Department as approximately correct.

### THE BEGINNING OF THE CITY

In the early days of the city the cottages were erected entirely with a view to summer residences. They were simply frame shells, generally two stories high, very few having even brick foundations. Bath-tubs were unnecessary because there was plenty of bathing water in the ocean. Drinking-water was secured by catching the rain from the roof in cisterns or barrels. If heat were provided at all it was supplied through the medium of old-fashioned portable stoves.

The only feature of the old-style house that survives is the porch, which has been modernized and improved on until it has become a thing of architectural beauty and luxury. With the development of modern utilities, including water, sewerage, gas, electricity and trolley service, the old-fashioned flimsy cottages gave way to palatial homes, new residential sections were improved and well-equipped apartment-houses came into being. As a result the city can boast of thousands of residences to suit the most fastidious taste, while hundreds of apartment-houses, many of them with automatic elevators, are equipped in a manner to rival cosmopolitan structures. The houses as a rule are heated by hot water or steam with auxiliary open wood fire-places. They are fitted up with both gas and electricity, while the gas hot-water heater is frequently installed.

### BEAUTIFUL RESIDENCES

Generally the cottages are erected on open ground and surrounded by green lawns, terraces and imposing flower-beds. This gives the opportunity for the continual sunshine which has made Atlantic City famous to penetrate to every part of the house. The furnishings are often gorgeous but also appropriate. Most of the houses are to be let furnished ready for housekeeping by the season or by the year, at prices that give only a fair percentage of return on the investment and that are no higher than charges for similar service in the larger cities.

Housekeepers from other cities who have had experience in Atlantic City have spoken in high praise of the Atlantic City markets. Everything in season can be obtained fresh and luscious at reasonable rates. New York and Philadelphia markets are within easy reach, while hundreds of farmers in the immediate vicinity dispose of their entire produce, including poultry, eggs and butter, in Atlantic City.

### CHURCHES AND SCHOOLS

There are churches for every denomination, and in some cases several for each, so distributed as to make them easily accessible. The clergymen officiating are among the leaders in their profession.

The Atlantic City public schools, including a most efficient high school, are reputed to be among the most proficient in the world. There are in addition several desirable private schools for both boys and girls. A resident here, whether in cottage or hotel, can send children to any of the schools, for a short or long time, whether it be for a week, month, term or year.

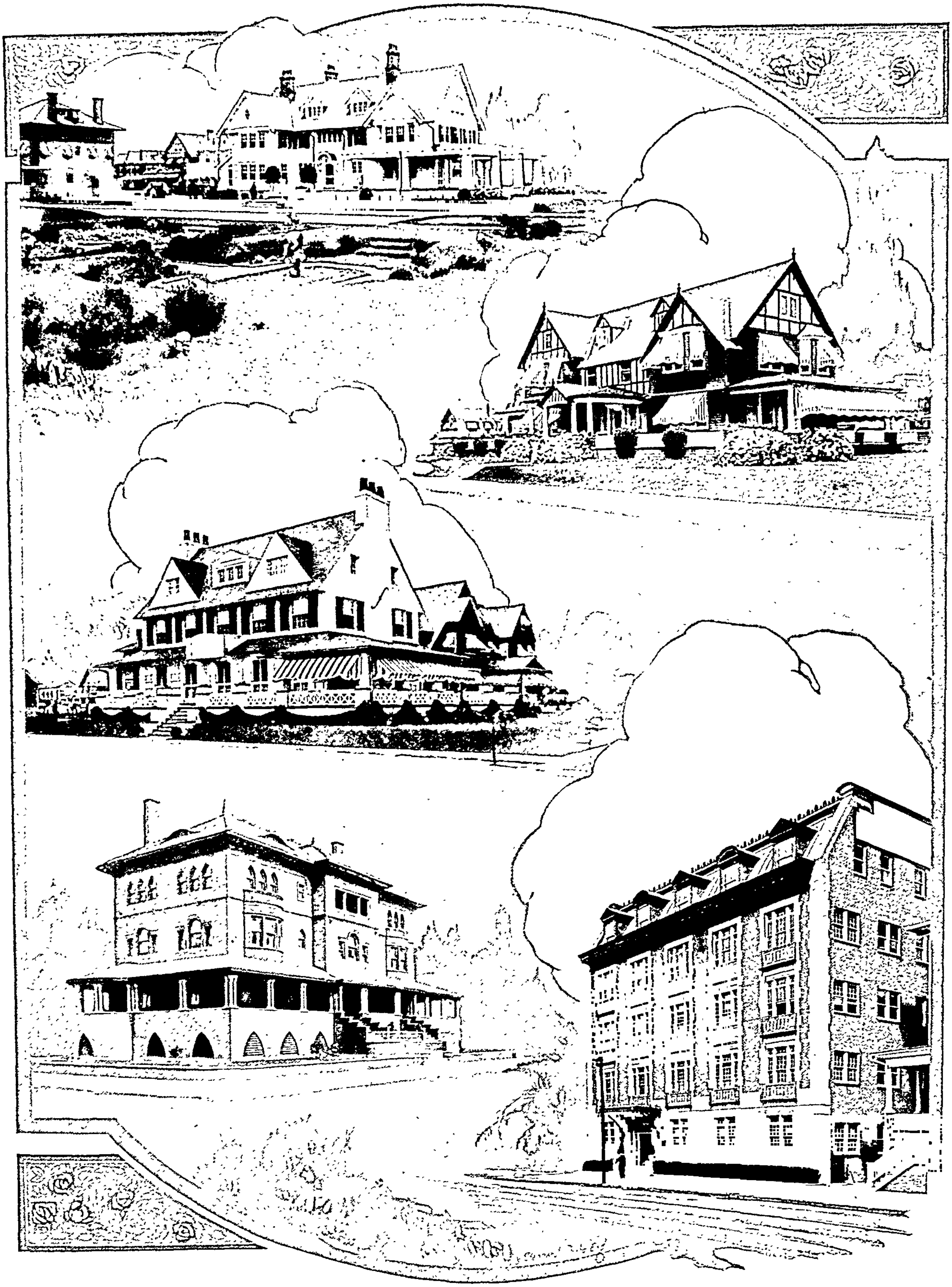

Fig. 2.—A group of modern Atlantic City residences and apartment buildings.

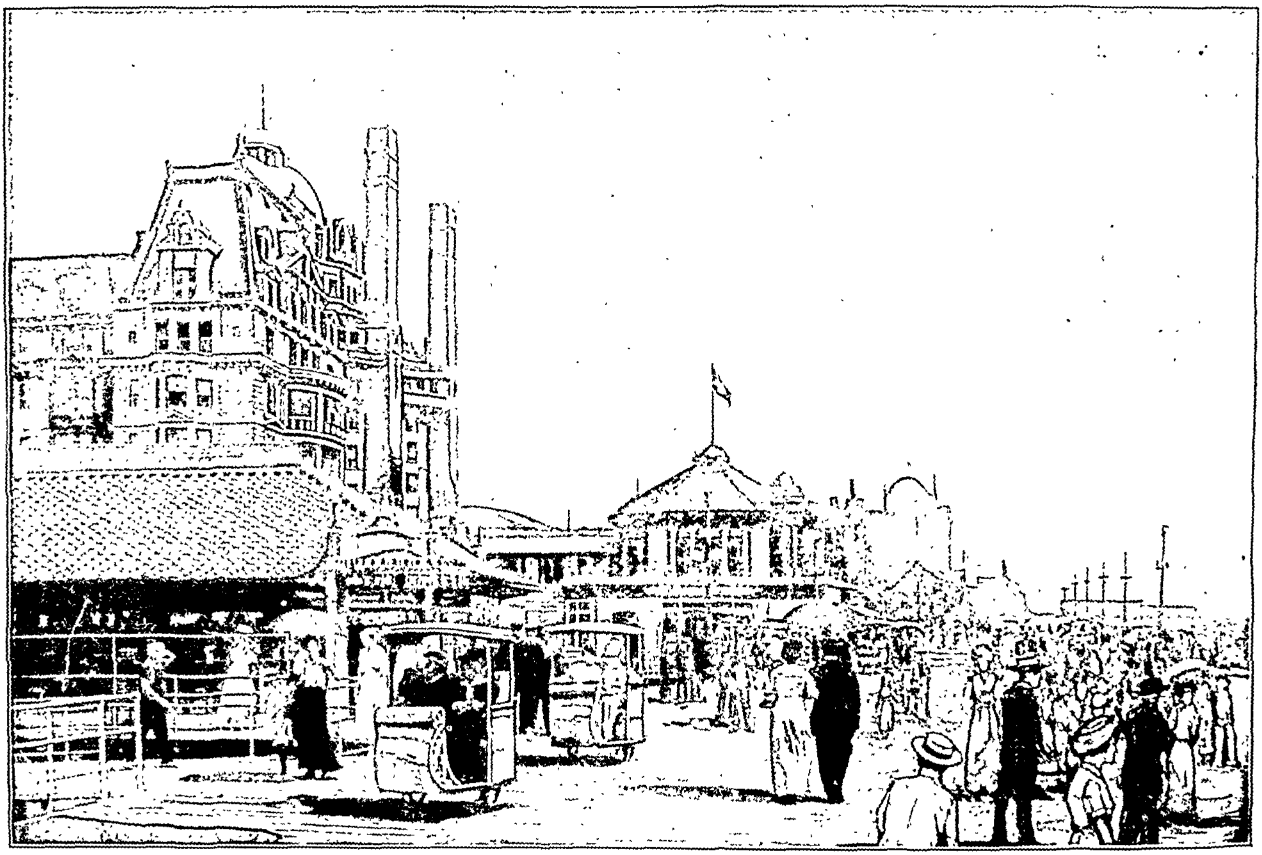

Fig. 3.—View of the Boardwalk, the hotels and a beach scene.

### SERVICE TO PHILADELPHIA

Philadelphia is so near that commuting is as quickly accomplished as from points, for instance, on the Pennsylvania R. R. main line. A Lower Chelsea cottager can take the Atlantic Avenue trolley line, transfer to the steam train, and by subway connection in Philadelphia, reach Broad and Chestnut streets within an hour and a half. He can leave for New York at 7:45 a. m., have six hours in New York and be again in his home before 9 o'clock at night. Again, he can leave for New York at 9:15 in the morning, have three hours in New York and be in his home at 6:30 in the evening. The post-office gives frequent mail service, while the newspapers of all the important cities of the world are obtainable each day.

### THE CITY SHOPS

The ladies' shops in Atlantic City are so enticing that many patrons from adjacent cities, including New York, Philadelphia, Baltimore, Washington and Pittsburgh, come to patronize them. It is the height of luxury for women to take a rolling-chair and proceed from store to store to do their purchasing, without leaving the chair. Many of the shops are branches of noted New York, London and Paris houses, and the newest importations are seen here even sooner than they appear in the metropolis. Alongside these shops, catering to the modern wants of the public, are others featuring the wares of Japan, Armenia, Turkey, Egypt and Syria. They have beautiful displays of colorful merchandise, delicate cobwebby laces, articles of virtu of great artistic value, oriental carpets and rugs of wonderful beauty, and costly and exquisite jewels. The dark-skinned foreign salespeople lend an added charm with their expressive eyes, quaint speech and eloquent gestures.

### RECREATION IN ATLANTIC CITY

For recreation, Atlantic City is the place *par excellence.* There is the always famous Boardwalk, the strand with its piers and the ocean bathing. Then come unparalleled waters for boating and fishing. The best kind of roads around the city, with paved streets within, make automobiling a luxury. The finest theatrical productions are shown in Atlantic City, many of the new plays being produced here for the first time. One of the finest golf-clubs in the country is at Northfield, accessible to visitors, and a new course is being laid out at Absecon which is to be called the "Millionaires' Club."

There are endless diversions to be found in the wonders of the ocean view. Delightful memories of golden moments by the booming and ever-restless sea may be gathered, and charming encounters with the spirit of romance that seems in the very atmosphere. Out at the inlet are fleets of little sail-boats ready to be hired by disciples of Izaak Walton who would while away the time with rod and reel, or pleasure parties eager to sail over the smooth waters into the deeper curve of the sea. There are many sand-bars situated along the upper end, and on bright days the clam-diggers may be discerned across the stretch of waters digging for clams in what appears from the shore to be deep water. Quiet or excitement may be obtained as the taste may run, and cottages can be obtained where diversion is plentiful or on the outskirts where all is peaceful.

### THE BOARDWALK

The most peculiar and distinctive feature of Atlantic City is of course the famous Boardwalk. It is an ocean promenade erected about 10 feet above the beach proper. It is 8 miles long with a practically unobstructed ocean view. On its widest portion it is 60 feet wide. The topography of the city being narrow, and the Boardwalk running along its entire length, all of the cottages are brought within easy reach of the great esplanade.

On this famed thoroughfare a great procession marches and countermarches in an unceasing, never-ending throng. All seems animation and gaiety. The members of the fair sex are clad in the most wonderful garments of the passing mode. The most extreme styles prevail, and eccentricities in color costuming and design are so general as to attract little attention. Many new fads have had their première on the Boardwalk. Here the first Teddy Bear put in an appearance, and the harem skirt, the Cleopatra stocking and the skillet hat were first seen in America on the famous Boardwalk of Atlantic City.

At night it is a scene of fairy-like splendor. The sparkling jewels of the fair women who promenade, clad in wonderful gowns of every color and description, seem to vie with the myriad of electric lights stretching for miles on either side.

Six great piers extend out into the sea where concerts by noted bands may be enjoyed, net-hauls witnessed, and hippodromes and quality vaudeville used to fill spare moments. Dancing in all the modern forms is of course a popular diversion. Several of the piers have ballrooms with excellent floors for the accommodation of those who care to "trip the light fantastic." Tango contests are held throughout the winter and exhibitions frequently given by noted exponents of the art.

### THE PEERLESS CONVENTION CITY

Thus it may be seen that Atlantic City has advantages for residents rarely combined in one locality. It has health and comfort, combined with convenience and economy, that make life worth living. Each year adds to the number of families retired from business that have selected Atlantic City as a final abode. But above and beyond all the attraction is the almost perpetual sunshine, or as it has been said of Atlantic City, "nine months of sunshine and three months of mild winter."

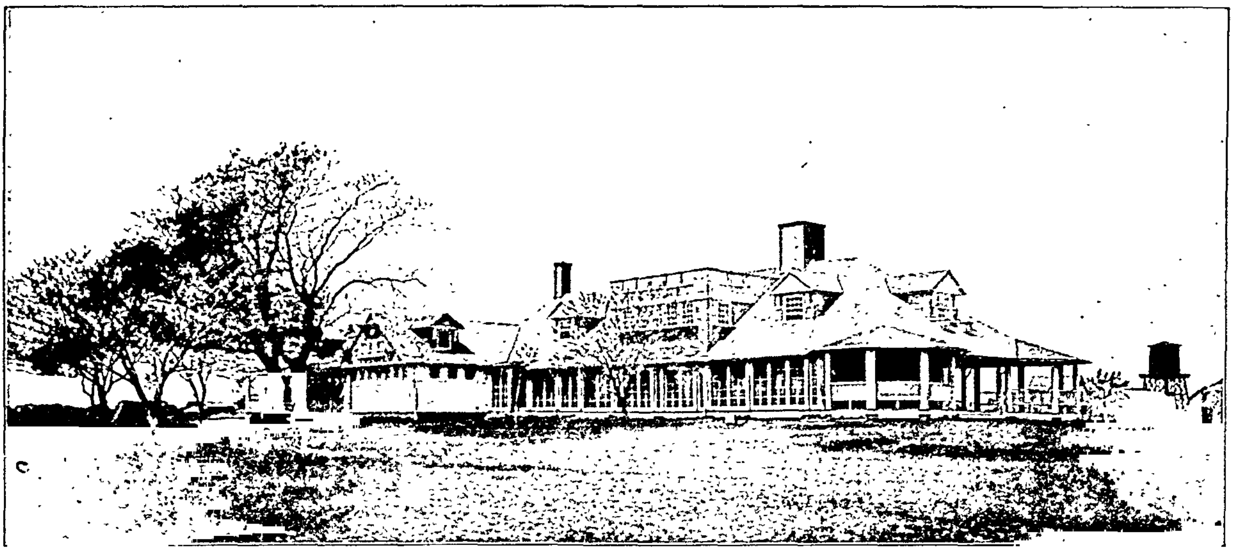

Fig. 4.—The Country Club.

# TRANSPORTATION TO THE MEETING

## Rates for Round Trips to Atlantic City—Announcement of the Transportation Committee

The Committee on Transportation and Place of Session suggests that Fellows consult the local ticket-agent in their home town for full information regarding rates, time limits, extensions and stop-over privileges preparatory to purchasing railway ticket for the Atlantic City session. The tariff schedules on file at every ticket-office will allow the local agent to quote rates from any point. In addition to this, with the assistance of the agent, a physician can plan for an additional trip either going or coming. These side trips, of course, can be arranged for from Atlantic City, but in most instances a better rate can be obtained if a complete itinerary is submitted to the local agent. The committee announces the following rates for the Atlantic City session:

### Special Tourist Rates

The Trunk Line Association has authorized a rate of 2 cents a mile in each direction with a minimum of $1 for the round trip, going and returning via same route only; tickets to be sold and good, going, June 20 to 22, and returning to reach the original starting-point not later than June 29.

The Western Passenger Association calls attention to the very favorable tourist fares to Atlantic City which will be available to persons desiring to attend the annual session. The general basis of these fares is 2 cents a mile in each direction up to the eastern gateway, added to the fares tendered therefrom. These fares are on as liberal a basis as are made by the lines of the Western Passenger Association.

The New England Passenger Association announces the following fares: Two cents per mile in each direction, short-line mileage, plus fares tendered from basing points for the round trip; going and returning via same route only. Reductions apply only from principal stations where tariffs are on file and through tickets are in stock. Other stations will require not less than forty-eight hours' notice to the ticket-agent so that fares and tickets may be obtained from the general passenger department of the railroad interested. Tickets to be sold and good going June 20-22, and returning to reach original starting-point not later than June 29. Reductions will not apply on the Bangor & Aroostook R. R., or Eastern Steamship Corporation.

The Southwestern Passenger Association calls attention to the summer tourist fares which are in effect from practically all points in this territory to Atlantic City at the time the session is held. These fares are on the basis of 2 cents per mile, with long limits.

The Trans-Continental Passenger Association announces that the several lines of this association individually announce special fares from California and North Pacific Coast points to their eastern termini and to certain destinations east of their Eastern termini, as follows: From California common points to Chicago, $72.50; to New York or Philadelphia, $108.50. Tickets will be sold from North Pacific Coast points on certain days in May, and daily from June 1 to September, both inclusive, 1914, and from California on special dates in April to September, inclusive, full details concerning which can be obtained from local ticket-agents. Nine-month tourist fares and arrangements approximating 2 cents per mile in each direction, or about one fare and one-third for the round trip, are in effect daily from California and North Pacific Coast common points to Chicago, St. Louis, New Orleans and other points. From California to Chicago and return, $109.50. St. Louis or New Orleans and return, $104.

### American Medical Special Train to Atlantic City

A special train of all-steel equipment, including club car, drawing-room sleeping-cars, dining-car and observation-car, will leave Chicago, Twelfth Street Station, 6:30 p. m., Sunday, June 21, over the Michigan Central "Niagara Falls Route," via Buffalo and the Pennsylvania Railroad, and will reach Atlantic City Monday, June 22 in ample time for dinner. The round-trip fare from Chicago will be $29.50, with a thirty-day limit from date of sale, by which time the original starting point must be reached.

This special train will be stopped at Niagara Falls, Monday morning at 7 o'clock or a little after, at one of the most favorable places for viewing the falls. A sufficient length of time will be allowed to permit passengers to leave the train for this purpose. Special cars from different points west of Chicago are now being arranged, and as hereafter noted the Chicago Medical Society will have space reserved on the train.

Stop-over privileges will be allowed at all points on the Michigan Central, including Niagara Falls. A stop-over not to exceed ten days will be allowed by the Pennsylvania Railroad at Buffalo and Philadelphia on deposit of the ticket with the depot ticket-agent immediately on arrival. This will permit a stop-over at Philadelphia and a side trip to New York. The round-trip fare from Philadelphia to New York is $4. Round-trip side trips may be made from Niagara Falls to Toronto, $2, limit two days, and to Thousand Islands and Alexandria Bay, $11.75, limit thirty days. Sight-seeing tours at Niagara Falls may be obtained from the ticket-agents at Niagara Falls, covering circuit tour of Niagara River with view of the Falls and Rapids, at $1, and including additional carriage ride around Goat Island, 50 cents extra.

Tickets will be accepted for transportation, meals and berth extra, on steamers of the D. & C. Navigation Company between Buffalo and Detroit on presentation to ticket-agent or purser of the steamer line.

Further information can be obtained from representatives of the Michigan Central Railroad, or by addressing Mr. C. C. Clark, General Agent, Passenger Department, 228 South Clark Street, Chicago.

#### CHICAGO MEDICAL SOCIETY SPECIAL CARS

Dr. Charles H. Parkes, secretary, announces that special cars reserved for members of the Chicago Medical Society will be attached this year to the American Medical Special. This will give those members who go to Atlantic City a delightful "personally conducted" trip. The schedule planned is to start from Chicago at 6:30 on the evening of Sunday, June 21. The train will stop for a short time at Niagara Falls and the party will reach Atlantic City in time for dinner Monday evening. Members of the Chicago Medical Society planning to go to Atlantic City should at once reserve space on these special cars. Further details will be found in the announcement of the American Medical Special.

J. Rawson Pennington, Chairman.

#### PENNSYLVANIA LINES

The Pennsylvania Lines will operate a special train leaving Chicago at 3 p. m., Sunday, June 21, reaching Atlantic City about 2 o'clock the next afternoon. Train will run through solid, will be an all-steel train, including compartment-observation car, library-club car, standard sleeping-cars and Pennsylvania dining-cars, serving table d'hote dinner at $1 per plate and à la carte breakfast and luncheon the next day. The tourist fare, Chicago to Atlantic City and return, will be $29.50, with a limit of thirty days, and may read via Washington if parties so desire, enabling them to stop at Baltimore and Washington on the return trip for ten days each, but not to exceed the final limit, date of deposit counting as one day, if deposited with depot ticket-agent immediately on arrival. As many of the physicians and surgeons will want to go on to New York after the convention is over, thirty-day tickets can be purchased to New York and return at fare of $30 and an opportunity will be given to deposit these tickets at Philadelphia, where stop-over will be granted for ten days, but not to exceed the final limit of the ticket, date of deposit counting as one day, and excursion tickets purchased from Philadelphia to Atlantic City and back at $2.50. Diverse route tickets to New York and Boston ranging in price from $34 to $46 will also be on sale. These tickets will also be good on regular trains on payment of extra fare on trains on which this is charged, except Broadway Limited, Trains 28 and 29. Those coming from beyond Chicago can purchase tickets from their home agent which will be good on the special train.

#### THE GRAND TRUNK SYSTEM

The Grand Trunk Railway System announces that it will have on sale June 1 daily up to and including September 30, round-trip, thirty-day excursion tickets to Atlantic City, via the Grand Trunk-Lehigh Valley Double Track Route, via Philadelphia and the Scenic Route of America; also sixty-day circle tour tickets going via New York, returning via Philadelphia, Baltimore and Washington at the following rates:

Chicago to Atlantic City and return, $29.10, thirty-day limit.

Chicago to New York, returning via Philadelphia, Baltimore and Washington, $32.40, sixty-day limit.

On the thirty-day tickets, liberal stop-overs are allowed in the United States and all intermediate points in Canada. On the sixty-day tourist tickets, stop-overs are allowed at all intermediate points en route.

The Grand Trunk Railway System operates three solid vestibule trains leaving Chicago daily at 11:05 a. m., 3:30 p. m. and 11:05 p. m., carrying steel underframe coaches, steel Pullmans and dining-cars, electric lighted throughout. It will also have many other interesting summer trips on sale beginning June 1, including circle tours going one way and returning another.

#### BALTIMORE AND OHIO RAILROAD

The "picturesque" Baltimore & Ohio Railroad offers the advantages of three all-steel, electrically lighted trains daily between Chicago and Philadelphia, where connection is made with the "mile-a-minute" trains on the Atlantic City Railroad for Atlantic City. These trains leave Chicago at 8 a. m., 11 a. m. and 5:45 p. m., and arrive in Philadelphia at 10:15 a. m., 2:02 p. m. and 8:19 p. m., respectively, the next day. Trains leave Philadelphia for Atlantic City every hour from 5 a. m. to 11 p. m. The trains passing through the mountains in daytime are equipped with observation cars from which may be viewed some of the most beautiful scenery in the United States. On tickets sold to Atlantic City and return at $29.10, the return limit on which will be thirty days from date of sale, stop-over within the limit of the ticket will be given at all points in both directions. In addition to the reduced fares to Atlantic City, summer excursion tickets will be sold to New York and Boston and return at greatly reduced fares, which may be taken advantage of by making a side trip from Philadelphia to Atlantic City and return at a cost not to exceed $2 for the round trip. The summer excursion tickets sold to New York and Boston and return will be limited for return within sixty days from date of sale, and will be valid going one way and returning another.

### HOTEL RESERVATIONS

Although Atlantic City is a city of hotels, and can easily accommodate those in attendance on the annual session, Fellows are urged to make their hotel reservations early. It will be a great comfort on arriving at Atlantic City to go at once to a hotel which is expecting you rather than to make a round of hotels, finding a number of them completely filled and finally being compelled to take the first lodgings which can be found in a hurried personal search. The list of hotels appearing in this issue locates the different hotels and gives their rates. Make your selection, write to the manager and take with you to Atlantic City his reply assuring you that a reservation has been made for your use. Then, on arriving at Atlantic City all you will have to do is to go to this hotel and register.

# PRELIMINARY PROGRAM OF THE SCIENTIFIC ASSEMBLY

## PROGRAM OF OPENING MEETING

**Apollo Theater**

**Tuesday, June 23, 10:30**

Music.

Call to Order. President, John A. Witherspoon, Nashville, Tenn.

Invocation. Rev. Henry Merle Mellen, Atlantic City.

Address of Welcome. Enoch Hollingshead, Pemberton, N. J., President, Medical Society of New Jersey.

Introduction and Installation of President-Elect Victor C. Vaughan, Ann Arbor, Mich.

Address. Victor C. Vaughan, President.

Music.

## THE PROGRAMS OF THE SECTIONS

### Outline of the Scientific Proceedings—The Preliminary Program and the Official Program

The following papers are announced to be read before the various sections. The order here is not necessarily the order which will be followed in the Official Program nor is the list complete. The Official Program will be a pamphlet similar to those issued in previous years, and will contain the final program of each section with abstracts of the papers, also lists of committees, programs of the General Meeting and of the meetings of the House of Delegates, lists of entertainments, map of Atlantic City and other information. To prevent misunderstandings and to protect the interests of advertisers, it is here announced that this Official Program will contain no advertisements. It is copyrighted by the American Medical Association and will not be distributed before the session. A copy will be given to each member on registration.

## SECTION ON PRACTICE OF MEDICINE

MEETS IN ST. PAUL'S CHURCH

Chairman, Charles Lyman Greene, St. Paul, Minn.; Secretary, Roger S. Morris, Clifton Springs, N. Y.

**Tuesday, June 23—2 p. m.**

Will Sprue Become Endemic in the United States? Notes on Cases Invalided from the Tropics (10 minutes).
H. B. Hiatt, High Point, N. C., and William Allan, Charlotte, N. C.

The Syndrome of Adrenal Insufficiency (15 minutes).
Tom A. Williams, Washington.

Neurasthenia and Tuberculosis (Concealed) (15 minutes).
George Douglas Head, Minneapolis.

The Nervous Side of Physical Disorders (15 minutes).
Charles P. Emerson, Indianapolis.

The Use of Atophan and Radium Emanation in the Treatment of Gout and the Arthritides (15 minutes).
Arthur F. Chace, New York.

Intrarectal Administration of Sodium Salicylate in Acute Rheumatic Fever with Satisfactory Results (10 minutes). Louis G. Heyn, Cincinnati.

**Wednesday, June 24—9 a. m.**

*SYMPOSIUM ON NUTRITION*

JOINT MEETING WITH THE SECTION ON PATHOLOGY AND PHYSIOLOGY, IN ST. PAUL'S CHURCH

The Specificity of the Nutrients.
L. B. Mendel, New Haven, Conn.

The Specific Dynamic Action of Food.
Graham Lusk, New York.

The Intermediary Metabolism. Otto Folin, Boston.

The Total Energy Requirement in Disease as Determined by Calorimetric Observations.
Eugene F. Du Bois, New York.

**Wednesday, June 24—2 p. m.**

The Heart in the Pneumonias (10 minutes).
Robert N. Willson, Philadelphia.

Differentiation of Various Types of Aortic Insufficiency (10 minutes). Robert B. Preble, Chicago.

The Treatment of Heart Involvement in Syphilis (15 minutes). Harlow Brooks and John Carrol, New York.

The Four Common Types of Heart-Disease (15 minutes).
Richard C. Cabot, Boston.

Cardiovascular and Renal Responsibility in the Disturbances of Cardiorenal Disease (15 minutes).
Alfred Stengel, Philadelphia.

Effect of Low and High Nitrogen Diet on Renal Function Tests in Chronic Nephritis (10 minutes).
C. Frothingham, Jr., Boston.

Studies in Liver Function (15 minutes).
L. G. Rowntree, Baltimore.

**Thursday, June 25—9 a. m.**

Essential Factors in the Diagnosis of Duodenal and Gastric Ulcers (15 minutes).
Christopher Graham and George Eusterman, Rochester, Minn.

End-Results in Gastric and Duodenal Ulcer (15 minutes).
Elliott P. Joslin, Boston.

Gastric Cancer in the Young: A Study of Fourteen Cases in Patients Under the Age of 31 (15 minutes).
Frank Smithies, Chicago.

Focal Infection. Its Broader Application in the Etiology of General Disease (15 minutes).
Frank Billings, Chicago.

The Newer Bacteriology of Various Infections Determined by Special Methods (15 minutes).
E. C. Rosenow, Chicago.

The Dead Space and Alveolar Air in Emphysema and Bronchial Asthma (15 minutes).
C. F. Hoover, Cleveland.

**Thursday, June 25—2 p. m.**

Late Manifestations of Inherited Syphilis with Especial Reference to Arterial Disease (15 minutes).
Henry F. Stoll, Hartford, Conn.

Various Types of Lues: A Clinical and Laboratory Study. The Abelin Reaction. Direct Subdural Injections (15 minutes).
W. E. Robertson and J. V. Klauder, Philadelphia.

A Study of the Arneth Formulas (10 minutes).
Graham E. Henson, Jacksonville, Fla.

Salvarsan in Pernicious Anemia (15 minutes).
James S. Brotherhood, Clifton Springs, N. Y.

The Medical Application of Blood-Transfusion by the Syringe-Cannula System without Skin Incision (10 minutes). E. Lindeman, New York.

## SECTION ON SURGERY

MEETS IN MORRIS GUARDS' HALL

Chairman, Charles H. Frazier, Philadelphia; Secretary, E. S. Judd, Rochester, Minn.

**Tuesday, June 23—2 p. m.**

Chairman's Address: The Cerebrospinal Fluid as a Problem in Intracranial Surgery.
Charles H. Frazier, Philadelphia.

A Contribution to the Surgery of Brain Tumors.
Herman Kuttner, Breslau, Germany.

Osteoplastic Closure of the Trifacial Canals. An Experimental and Clinical Study Illustrated by Lantern-Slides. Allen B. Kanavel, Chicago.

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J. Rawson Pennington, Chairman.

#### PENNSYLVANIA LINES

The Pennsylvania Lines will operate a special train leaving Chicago at 3 p. m., Sunday, June 21, reaching Atlantic City about 2 o'clock the next afternoon. Train will run through solid, will be an all-steel train, including compartment-observation car, library-club car, standard sleeping-cars and Pennsylvania dining-cars, serving table d'hote dinner at $1 per plate and à la carte breakfast and luncheon the next day. The tourist fare, Chicago to Atlantic City and return, will be $29.50, with a limit of thirty days, and may read via Washington if parties so desire, enabling them to stop at Baltimore and Washington on the return trip for ten days each, but not to exceed the final limit, date of deposit counting as one day, if deposited with depot ticket-agent immediately on arrival. As many of the physicians and surgeons will want to go on to New York after the convention is over, thirty-day tickets can be purchased to New York and return at fare of $30 and an opportunity will be given to deposit these tickets at Philadelphia, where stop-over will be granted for ten days, but not to exceed the final limit of the ticket, date of deposit counting as one day, and excursion tickets purchased from Philadelphia to Atlantic City and back at $2.50. Diverse route tickets to New York and Boston ranging in price from $34 to $46 will also be on sale. These tickets will also be good on regular trains on payment of extra fare on trains on which this is charged, except Broadway Limited, Trains 28 and 29. Those coming from beyond Chicago can purchase tickets from their home agent which will be good on the special train.

#### THE GRAND TRUNK SYSTEM

The Grand Trunk Railway System announces that it will have on sale June 1 daily up to and including September 30, round-trip, thirty-day excursion tickets to Atlantic City, via the Grand Trunk-Lehigh Valley Double Track Route, via Philadelphia and the Scenic Route of America; also sixty-day circle tour tickets going via New York, returning via Philadelphia, Baltimore and Washington at the following rates:

Chicago to Atlantic City and return, $29.10, thirty-day limit.

Chicago to New York, returning via Philadelphia, Baltimore and Washington, $32.40, sixty-day limit.

On the thirty-day tickets, liberal stop-overs are allowed in the United States and all intermediate points in Canada. On the sixty-day tourist tickets, stop-overs are allowed at all intermediate points en route.

The Grand Trunk Railway System operates three solid vestibule trains leaving Chicago daily at 11:05 a. m., 3:30 p. m. and 11:05 p. m., carrying steel underframe coaches, steel Pullmans and dining-cars, electric lighted throughout. It will also have many other interesting summer trips on sale beginning June 1, including circle tours going one way and returning another.

#### BALTIMORE AND OHIO RAILROAD

The "picturesque" Baltimore & Ohio Railroad offers the advantages of three all-steel, electrically lighted trains daily between Chicago and Philadelphia, where connection is made with the "mile-a-minute" trains on the Atlantic City Railroad for Atlantic City. These trains leave Chicago at 8 a. m., 11 a. m. and 5:45 p. m., and arrive in Philadelphia at 10:15 a. m., 2:02 p. m. and 8:19 p. m., respectively, the next day. Trains leave Philadelphia for Atlantic City every hour from 5 a. m. to 11 p. m. The trains passing through the mountains in daytime are equipped with observation cars from which may be viewed some of the most beautiful scenery in the United States. On tickets sold to Atlantic City and return at $29.10, the return limit on which will be thirty days from date of sale, stop-over within the limit of the ticket will be given at all points in both directions. In addition to the reduced fares to Atlantic City, summer excursion tickets will be sold to New York and Boston and return at greatly reduced fares, which may be taken advantage of by making a side trip from Philadelphia to Atlantic City and return at a cost not to exceed $2 for the round trip. The summer excursion tickets sold to New York and Boston and return will be limited for return within sixty days from date of sale, and will be valid going one way and returning another.

## HOTEL RESERVATIONS

Although Atlantic City is a city of hotels, and can easily accommodate those in attendance on the annual session, Fellows are urged to make their hotel reservations early. It will be a great comfort on arriving at Atlantic City to go at once to a hotel which is expecting you rather than to make a round of hotels, finding a number of them completely filled and finally being compelled to take the first lodgings which can be found in a hurried personal search. The list of hotels appearing in this issue locates the different hotels and gives their rates. Make your selection, write to the manager and take with you to Atlantic City his reply assuring you that a reservation has been made for your use. Then, on arriving at Atlantic City all you will have to do is to go to this hotel and register.

# PRELIMINARY PROGRAM OF THE SCIENTIFIC ASSEMBLY

## PROGRAM OF OPENING MEETING

**Apollo Theater**

**Tuesday, June 23, 10:30**

Music.

Call to Order. President, JOHN A. WITHERSPOON, Nashville, Tenn.

Invocation. REV. HENRY MERLE MELLEN, Atlantic City.

Address of Welcome. ENOCH HOLLINGSHEAD, Pemberton, N. J., President, Medical Society of New Jersey.

Introduction and Installation of President-Elect VICTOR C. VAUGHAN, Ann Arbor, Mich.

Address. VICTOR C. VAUGHAN, President.

Music.

## THE PROGRAMS OF THE SECTIONS

### Outline of the Scientific Proceedings—The Preliminary Program and the Official Program

The following papers are announced to be read before the various sections. The order here is not necessarily the order which will be followed in the Official Program nor is the list complete. The Official Program will be a pamphlet similar to those issued in previous years, and will contain the final program of each section with abstracts of the papers, also lists of committees, programs of the General Meeting and of the meetings of the House of Delegates, lists of entertainments, map of Atlantic City and other information. To prevent misunderstandings and to protect the interests of advertisers, it is here announced that this Official Program will contain no advertisements. It is copyrighted by the American Medical Association and will not be distributed before the session. A copy will be given to each member on registration.

## SECTION ON PRACTICE OF MEDICINE

MEETS IN ST. PAUL'S CHURCH

CHAIRMAN, CHARLES LYMAN GREENE, ST. PAUL, MINN.; SECRETARY, ROGER S. MORRIS, CLIFTON SPRINGS, N. Y.

**Tuesday, June 23—2 p. m.**

Will Sprue Become Endemic in the United States? Notes on Cases Invalided from the Tropics (10 minutes).
H. B. HIATT, High Point, N. C., and WILLIAM ALLAN, Charlotte, N. C.

The Syndrome of Adrenal Insufficiency (15 minutes).
TOM A. WILLIAMS, Washington.

Neurasthenia and Tuberculosis (Concealed) (15 minutes).
GEORGE DOUGLAS HEAD, Minneapolis.

The Nervous Side of Physical Disorders (15 minutes).
CHARLES P. EMERSON, Indianapolis.

The Use of Atophan and Radium Emanation in the Treatment of Gout and the Arthritides (15 minutes).
ARTHUR F. CHACE, New York.

Intrarectal Administration of Sodium Salicylate in Acute Rheumatic Fever with Satisfactory Results (10 minutes). LOUIS G. HEYN, Cincinnati.

**Wednesday, June 24—9 a. m.**

*SYMPOSIUM ON NUTRITION*

JOINT MEETING WITH THE SECTION ON PATHOLOGY AND PHYSIOLOGY, IN ST. PAUL'S CHURCH

The Specificity of the Nutrients.
L. B. MENDEL, New Haven, Conn.

The Specific Dynamic Action of Food.
GRAHAM LUSK, New York.

The Intermediary Metabolism. OTTO FOLIN, Boston.

The Total Energy Requirement in Disease as Determined by Calorimetric Observations.
EUGENE F. DU BOIS, New York.

**Wednesday, June 24—2 p. m.**

The Heart in the Pneumonias (10 minutes).
ROBERT N. WILLSON, Philadelphia.

Differentiation of Various Types of Aortic Insufficiency (10 minutes). ROBERT B. PREBLE, Chicago.

The Treatment of Heart Involvement in Syphilis (15 minutes). HARLOW BROOKS and JOHN CARROL, New York.

The Four Common Types of Heart-Disease (15 minutes).
RICHARD C. CABOT, Boston.

Cardiovascular and Renal Responsibility in the Disturbances of Cardiorenal Disease (15 minutes).
ALFRED STENGEL, Philadelphia.

Effect of Low and High Nitrogen Diet on Renal Function Tests in Chronic Nephritis (10 minutes).
C. FROTHINGHAM, JR., Boston.

Studies in Liver Function (15 minutes).
L. G. ROWNTREE, Baltimore.

**Thursday, June 25—9 a. m.**

Essential Factors in the Diagnosis of Duodenal and Gastric Ulcers (15 minutes).
CHRISTOPHER GRAHAM and GEORGE EUSTERMAN, Rochester, Minn.

End-Results in Gastric and Duodenal Ulcer (15 minutes).
ELLIOTT P. JOSLIN, Boston.

Gastric Cancer in the Young: A Study of Fourteen Cases in Patients Under the Age of 31 (15 minutes).
FRANK SMITHIES, Chicago.

Focal Infection. Its Broader Application in the Etiology of General Disease (15 minutes).
FRANK BILLINGS, Chicago.

The Newer Bacteriology of Various Infections Determined by Special Methods (15 minutes).
E. C. ROSENOW, Chicago.

The Dead Space and Alveolar Air in Emphysema and Bronchial Asthma (15 minutes).
C. F. HOOVER, Cleveland.

**Thursday, June 25—2 p. m.**

Late Manifestations of Inherited Syphilis with Especial Reference to Arterial Disease (15 minutes).
HENRY F. STOLL, Hartford, Conn.

Various Types of Lues: A Clinical and Laboratory Study. The Abelin Reaction. Direct Subdural Injections (15 minutes).
W. E. ROBERTSON and J. V. KLAUDER, Philadelphia.

A Study of the Arneth Formulas (10 minutes).
GRAHAM E. HENSON, Jacksonville, Fla.

Salvarsan in Pernicious Anemia (15 minutes).
JAMES S. BROTHERHOOD, Clifton Springs, N. Y.

The Medical Application of Blood-Transfusion by the Syringe-Cannula System without Skin Incision (10 minutes). E. LINDEMAN, New York.

## SECTION ON SURGERY

MEETS IN MORRIS GUARDS' HALL

CHAIRMAN, CHARLES H. FRAZIER, PHILADELPHIA; SECRETARY, E. S. JUDD, ROCHESTER, MINN.

**Tuesday, June 23—2 p. m.**

Chairman's Address: The Cerebrospinal Fluid as a Problem in Intracranial Surgery.
CHARLES H. FRAZIER, Philadelphia.

A Contribution to the Surgery of Brain Tumors.
HERMAN KUTTNER, Breslau, Germany.

Osteoplastic Closure of the Trifacial Canals. An Experimental and Clinical Study Illustrated by Lantern-Slides. ALLEN B. KANAVEL, Chicago.

Treatment of Unlocalized Intracranial Injuries by Drainage Through a Subtemporal Approach.
Vilray P. Blair, St. Louis.

Consideration of 275 Cases of Acute Appendicitis, with Special Reference to Complications and Causes.
Archibald MacLaren, St. Paul, Minn.

Has the Last Word Been Spoken Concerning Appendicitis?
J. E. Moore, Minneapolis.

**Wednesday, June 24—9 a. m.**

Plastic Operations on the Kidney, and the Practical Application of Facts Demonstrated Experimentally.
John B. Murphy, Chicago.

Congenital Cystic Kidney. F. B. Lund, Boston.

A Simple Method of Tapping a Distended Bladder and Making Permanent Drainage.
W. L. Rodman, Philadelphia.

Testing the Efficiency of the Collateral Circulation; Its Importance in Determining Surgical Intervention and of Applying the Tests. R. Matas, New Orleans.

Aneurysm of the Posterior Tibial Artery, with Report of Two Cases. Alexius McGlannan, Baltimore.

Experimental Surgery of the Heart and Lungs.
Axel Werelius, Chicago.

**Wednesday, June 24—2 p. m.**

Oration on Surgery: The Relations of the Surgeon to the Conquest of Cancer. Joseph Bloodgood, Baltimore.

Exploration of the Knee-Joint and Its Teachings.
F. M. Corner, London, England.

Exophthalmos and Methods of Surgical Treatment.
C. H. Mayo, Rochester, Minn.

Mechanism for Injuries of the Shoulder Region: Results of Forty Operations. T. Turner Thomas, Philadelphia.

Operation on Thoracic Wall for Relief of Bronchial Asthma.
E. Wyllys Andrews, Chicago.

Aperiosteal Amputation (Hirsch-Bunge).
Henry H. M. Lyle, New York.

**Thursday, June 25—9 a. m.**

Anoci-Association in Relation to Operations on Gall-Bladder and Stomach. George W. Crile, Cleveland.

A Clinical Research in the Surgery of the Upper Abdomen.
Arthur D. Bevan, Chicago.

The Problem of Intestinal Obstruction: Effort to Explain Variable Clinical and Experimental Results.
Fred T. Murphy and Barney Brooks, St. Louis.

Internal Hernia Due to an Aberrant Middle Colic Artery.
Alexander Primrose, Toronto.

The Rodman Operation for Cancer of the Breast.
Donald Guthrie, Sayre, Pa.

**Thursday, June 25—2 p. m.**

*SYMPOSIUM ON SURGICAL SERVICE IN THE HOSPITAL*

JOINT MEETING WITH THE SECTION ON HOSPITALS IN MORRIS GUARDS' HALL

The Standardization of the Surgeon.
J. M. T. Finney, Baltimore.

The Standardization of the Surgical Clinic.
F. D. Gilbreth, New York.

The Surgical Service in Hospitals.
H. O. Collins, Minneapolis.

**Friday, June 26—9 a. m.**

Some Present-Day Problems in the Surgical Treatment of Gastric and Duodenal Ulcer.
Harold Collinson, Leeds, England.

Cancer Vaccine and Anticancer Globulins as an Aid in the Surgical Treatment of Malignancy.
J. W. Vaughan, Detroit.

Hodgkin's Disease.
C. H. Bunting, Madison, Wis., and J. L. Yates, Milwaukee, Wis.

Penetrating Wounds of the Abdomen.
Randolph Winslow, Baltimore.

## SECTION ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY

MEETS IN MORRIS GUARDS' HALL

Chairman, E. Gustav Zinke, Cincinnati; Secretary, Brooke M. Anspach, Philadelphia

**Tuesday, June 23—2 p. m.**

Chairman's Address: A Few Important but Unsolved Problems in Obstetrics, Gynecology and Abdominal Surgery.
E. Gustav Zinke, Cincinnati.

The Treatment of Albuminuria of Pregnancy.
Edward J. Ill, Newark.

The Treatment of the Toxemias of Pregnancy.
A. J. Rongy, New York.

The Treatment of Placenta Praevia.
Edward P. Davis, Philadelphia.

Hysterotomy. John B. Deaver, Philadelphia.

**Wednesday, June 24—9 a. m.**

*SYMPOSIUM ON SURGERY OF THE LARGE INTESTINE*

The Pathogenesis of the Pericolic Membranes. (Lantern Demonstration.)
Arthur E. Hertzler, Kansas City, Mo.

Experimental and Clinical Studies of Colon Stasis.
Joseph Rilus Eastman, Indianapolis.

The Condition of a Few Patients Two Years After Ileosigmoidostomy. Charles L. Bonifield, Cincinnati.

Resection of the First Portion of the Large Intestine and the Resulting Effect on Its Function.
William J. Mayo, Rochester, Minn.

Some Surgical Phases of the Sigmoid.
Charles A. L. Reed, Cincinnati.

**Wednesday, June 24—2 p. m.**

*SYMPOSIUM ON SPECIFIC AND PROTECTIVE FERMENTS*

JOINT MEETING WITH THE SECTION ON PATHOLOGY AND PHYSIOLOGY AND THE SECTION ON PHARMACOLOGY AND THERAPEUTICS, IN MORRIS GUARDS' HALL

The Present Status of the Investigation.
Emil Abderhalden, Halle, Germany.

Parenteral Protein Digestion.
Victor C. Vaughan, Ann Arbor, Mich.

The Mechanism, Diagnostic and Prognostic Significance of Skin Reaction. Frederick P. Gay, Berkeley, Cal.

Limitations of the Dialysis Method as a Practical Test for Pregnancy. Chester M. Echols, Milwaukee.

Biologic Tests in Pregnancy and Cancer.
C. F. Jellinghaus and J. R. Losee, New York.

**Thursday, June 25—9 a. m.**

The Present Status of Pyelography. (Lantern Demonstration.)
Floyd E. Keene and Henry K. Pancoast, Philadelphia.

Personal Experience with Exclusion of the Pylorus in the Treatment of Ulcer. Willard Bartlett, St. Louis.

Common Errors in Gall-Tract Surgery.
C. E. Ruth, Des Moines.

Thrombosis and Emboli: Their Significance and Consequences in Abdominal and Pelvic Surgery.
Angus McLean, Detroit.

The Application of Taylor Factory-Management to Hospital Surgery. Robert L. Dickinson, Brooklyn.

**Thursday, June 25—2 p. m.**

*SYMPOSIUM ON UTERINE HEMORRHAGE*

The Pathologic Physiology of Uterine Bleeding.
Emil Novak, Baltimore.

Physiologic and Pathologic Variations of the Generative Organs Causing Atypical Bleeding; Diagnostic Aspects.
John G. Clark, Philadelphia.

Radium Treatment of Uterine Hemorrhage.
Howard A. Kelly, Baltimore.

Roentgen Therapy in Uterine Hemorrhage.
George E. Pfahler, Philadelphia.

Fundamental Intrapelvic Perineorrhaphy.
Albert Goldspohn, Chicago.

Friday, June 26—9 a. m.

Pelvic Varicosities. A Definite Symptom-Complex.
William Edgar Darnall, Atlantic City, N. J.

The Embryology of the Umbilical Region (Lantern Demonstration). Thomas S. Cullen, Baltimore.

Vesicovaginal and Rectovaginal Fistulas.
Henry O. Marcy, Boston.

Potent Factors in Failure of Operations for Retrodisplacement of the Uterus. Frederick C. Holden, New York.

The Importance of a Clear Understanding of Changes in the Nervous System Incident to Pregnancy.
Raleigh R. Huggins, Pittsburgh, Pa.

## SECTION ON OPHTHALMOLOGY

MEETS IN THE PAROCHIAL SCHOOL

Chairman, Frank C. Todd, Minneapolis; Secretary, George S. Derby, Boston

Tuesday, June 23—2 p. m.

Chairman's Address. Frank C. Todd, Minneapolis.

Tumors of the Optic Nerve.
W. Gordon M. Byers, Montreal.

Ocular Manifestations of the Toxemia of Pregnancy; Clinical Report of a Case. Ward A. Holden, New York.

Two Cases of Acute Retrobulbar Neuritis Associated with Marked Acetonuria.
Lee Masten Francis, Buffalo, N. Y.

Chronic Ocular Tuberculosis. Necropsy Findings in a Case of Tuberculosis of the Hypophysis Cerebri. With lantern demonstration. F. H. Verhoeff, Boston.

Wednesday, June 24—9 a. m.

Epithelioma of the Lids. Carl Fisher, Rochester, Minn.

Hereditary Glaucoma (Simplex); the Report, with Operative Notes, of Four Generations of One Family.
F. Phinizy Calhoun, Atlanta, Ga.

Sclerocorneal Trephining for Glaucoma, with Tabulated Results of Seventy-Six Operations Performed by Col. R. H. Elliot and a Clinical Study of Twenty-Seven Operations by the Author.
Walter R. Parker, Detroit.

Late Infection Following a Trephining for Glaucoma.
E. V. L. Brown, Chicago.

Value of Miotics in Chronic Glaucoma.
William Campbell Posey, Philadelphia.

Wednesday, June 24—2 p. m.

Atrophy of the Optic Nerve in Myopia.
Theodore Axenfeld, Freiburg, Germany.

International Standard for Testing Vision, and Standardizing Other Visual Tests. Edward Jackson, Denver.

Is Tuberculosis an Important Factor in Phlyctenular Ophthalmia? Samuel Theobald, Baltimore.

A Study of the Effect of the Correction of Ametropia on Heterophoria with a Consideration of Some Associated Conditions. William Zentmayer, Philadelphia.

Thursday, June 25—9 a. m.

Safe and Speedy Extraction of the Immature Cataractous Lens Following Preliminary Capsulotomy.
Homer E. Smith, Norwich, N. Y.

The Influence of Hookworm Disease on the Eyes. A Study of Fifty-Three Cases. J. W. Jervey, Greenville, S. C.

Convergence Insufficiency. Alexander Duane, New York.

Trefoil or Stellate Keratectomy for Anterior Staphyloma.
S. Lewis Ziegler, Philadelphia.

Thursday, June 25—2 p. m.

Further Observations on the Hemiopic Pupillary Reaction Obtained with a New Clinical Instrument.
Clifford B. Walker, Boston.

Experimental Researches in Methyl Alcohol Inhalation.
H. H. Tyson and M. J. Schoenberg, New York.

Enucleation with Transplantation of Fat into the Orbit
Edward Stieren, Pittsburgh, Pa.

Demonstration of Sarcomas.
Walter B. Weidler, New York.

Demonstration of the Action of Trephining on Rabbits' Eyes.
E. C. Ellett, Memphis, Tenn.

## SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY

MEETS IN GUILD HALL, ASCENSION CHURCH

Chairman, Burt R. Shurly, Detroit; Secretary, Francis P. Emerson, Boston

Tuesday, June 23—2 p. m.

Chairman's Address: Preventive Otolaryngology.
Burt R. Shurly, Detroit.

Chronic Focal Infection of the Nose, Mouth, Throat and Ear.
Joseph C. Beck, Chicago.

The Faucial Tonsil as a Gateway to General Infection.
Norton L. Wilson, Elizabeth, N. J.

Latent and Tertiary Syphilis in Diseases of the Nose and Throat. Charles R. C. Borden, Boston.

Wednesday, June 24—9 a. m.

The Reconstruction of the Nasal Septum after the Submucous Operation. J. A. Babbitt, Philadelphia.

The Relation of Pathologic Conditions in the Nose and Throat to the Development and Treatment of Hyperthyroidism. S. P. Beebe, New York.

The Clinical Classification of Ethmoiditis.
E. M. Holmes, Boston.

The Pathology of Ethmoiditis.
George E. Shambaugh, Chicago.

Applied Anatomy and Surgical Treatment.
Harris P. Mosher, Boston.

Wednesday, June 24—2 p. m.

Hemorrhage from the Superior Petrosal Sinus as a Complication in Operations on the Lateral Sinus.
John Randolph Page, New York.

Metastatic Manifestations of Sinus Thrombosis.
Seymour Oppenheimer, New York.

Treatment of Deafness Due to Ossicular Fixation.
Philip D. Kerrison, New York.

Progress in the Treatment of Otitic Meningitis.
Samuel J. Kopetzky, New York.

Thursday, June 25—9 a. m.

The Indirect Method of Intralaryngeal Operation.
H. Holbrook Curtis, New York.

The Direct Method of Intralaryngeal Operation.
Chevalier Jackson, Pittsburgh, Pa.

The Suspension Method of Killiam.
Ross H. Skillern, Philadelphia.

The Value of Radiography in the Diagnosis of Diseases of the Nose and Throat. Samuel Iglauer, Cincinnati.

Laryngeal Papilloma. Harmon Smith, New York.

Thursday, June 25—2 p. m.

The Surgical Problem in Connection with the Cranial Accessory Sinuses. John F. Barnhill, Indianapolis.

Lantern Slides of Roentgenograms of the Nasal Accessory Sinuses. Lee M. Hurd, New York.

Vaccines in Otitis Media.
R. Bishop Canfield, Ann Arbor, Mich.

End-Results Following the Yankauer Operation on the Eustachian Tube. John L. Lougee, Boston.

Operations for Clefts of the Hard and Soft Palate. Linn Emerson, Orange, N. J.

The Origin of Labyrinthine Rest-Tone. Edmund P. Fowler, New York.

Sonorous Vibrations in Ear-Disease Lester M. Hubby, New York.

The Relation of the Rhinopharynx to the Middle Ear and Mastoid. E. L. Jones, Cumberland, Md.

### SECTION ON DISEASES OF CHILDREN

MEETS IN PLAY-ROOM, SEASIDE HOTEL

Chairman, F. S. Churchill, Chicago; Secretary, F. R. Gengenbach, Denver

**Tuesday, June 23—2 p. m.**

Chairman's Address: The Wet-Nurse in Hospital Practice. Frank Spooner Churchill, Chicago.

An Analysis of Cases of Infant-Feeding in Private Practice (15 minutes). C. G. Kerley, New York.

Some Practical Breast-Milk Problems (12 minutes). A. W. Myers, Milwaukee, Wis.

The Feeding of Skimmed Breast-Milk (15 minutes). Frank C. Neff, Kansas City, Mo.

Care of Delicate and Premature Children in the Home (15 minutes). H. M. McClanahan, Omaha.

Differential Diagnosis of Pyloric Stenosis (15 minutes). P. V. K. Johnson, Los Angeles.

**Wednesday, June 24—9 a. m.**

Refractory or So-Called "Fast" Cases of Meningococcus Meningitis (15 minutes). Henry Heiman, New York.

Urinary Analysis in the Diagnosis and Treatment of Diseases of Infancy and Childhood (15 minutes). Rowland Godfrey Freeman, New York.

Amebic Dysentery in Children (15 minutes). L. R. DeBuys, New Orleans.

Further Observations Continuing the Relation of Heat to Infant Mortality (15 minutes). Henry F. Helmholz, Chicago.

Further Investigation of the Bacillus Abortus Infection in Children (15 minutes). J. P. Sedgwick, Minneapolis.

**Wednesday, June 24—2 p. m.**

The Use of Boiled Milk in Infant-Feeding (15 minutes). Roger H. Dennett, New York.

Experiences with "Whey-Modified Milk" in Infant-Feeding (15 minutes). Jerome S. Leopold, New York.

Experiments with Swine Fat in Infant-Feeding (15 minutes). John Zahorsky, St. Louis.

The Absorption of Fat from the Intestinal Tract of the Actively Tuberculous Child (15 minutes). Frederick W. Schlutz, Minneapolis.

The Influence of Starch on Infant Digestion (15 minutes). Thomas S. Southworth, New York.

The Metabolism of Carbohydrates with Special Reference to Its Effect on the Absorption of Fat and Nitrogen and on the Retention of Salts (15 minutes). F. B. Talbot and Lewis W. Hill, Boston.

Blood-Pressure in Normal Infants (15 minutes). C. F. Judson, Philadelphia.

A Study of the Blood-Pressure in Anemia in Infancy (15 minutes). John Lovett Morse and Edwin T. Wyman, Boston.

Some Case Studies in the Purpuras of Childhood (15 minutes). I. A. Abt, Chicago.

**Thursday, June 25—9 a. m.**

Treatment of Inguinal Hernia in Infants (15 minutes). F. X. Walls, Chicago.

A Further Clinical Study of the Efficiency of Sodium Chlorid in the Therapeutics of Bright's Disease (15 minutes). H. Lowenburg, Philadelphia.

Diagnosis and Treatment of the Late Type of Hereditary Syphilis (15 minutes). B. S. Veeder, St. Louis.

**Thursday, June 25—2 p. m.**

The Relation of Bovine Tuberculosis to Early Tuberculosis in Childhood (15 minutes). T. C. McCleave, Berkeley, Cal.

Thoracic Complications of Rickets (15 minutes). J. Howland and E. A. Parks, Baltimore.

The Clinical and Pathologic Study of Hydrocephalus (15 minutes). Kenneth D. Blackfan and W. E. Dandy, Baltimore.

The Examination of the Chest in Children (15 minutes). Richard M. Smith, Boston, and Clifford D. Sweet, Fresno, Cal.

Investigation of the Diagnostic Value of Spinal Percussion and Auscultation (15 minutes). Langley Porter, San Francisco.

Fragilitas Ossium (15 minutes). Maurice Ostheimer, Philadelphia.

### SECTION ON PHARMACOLOGY AND THERAPEUTICS

MEETS IN GYMNASIUM, GRAMMAR SCHOOL

Chairman, John F. Anderson, Washington, D. C.; Secretary, M. I. Wilbert, Washington, D. C.

**Tuesday, June 23—2 p. m.**

Chairman's Address. John F. Anderson, Washington, D. C.

Studies on the Absorption of Drugs. Robert A. Hatcher and Cary Eggleston, New York.

Enteroclysis, Hypodermoclysis and Intravenous Injection. Lawrence Litchfield, Pittsburgh, Pa.

The Therapeusis of Pericarditis. Ray L. Wilbur, Palo Alto, Cal.

Therapy of Cardiovascular Disturbances. L. H. Newburgh, Boston.

Studies in Diabetes. A. I. Ringer, Philadelphia.

The Effects of Vapor Baths on the Total Non-Coagulable Nitrogen of the Blood in Nephritis. J. H. Austin and T. G. Miller, Philadelphia.

**Wednesday, June 24—9 a. m.**

*SYMPOSIUM ON SPECIFIC AND PROTECTIVE FERMENTS*

JOINT MEETING WITH SECTION ON PATHOLOGY AND PHYSIOLOGY AND SECTION ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY

(*For titles and authors of papers to be presented, see program of Section on Obstetrics, Gynecology and Abdominal Surgery.*)

**Wednesday, June 24—2 p. m.**

*SYMPOSIUM ON THE USE OF THE ROENTGEN RAY AND RADIUM IN THERAPY*

The Place of the Roentgen Ray in Therapeutics. George C. Johnston, Pittsburgh, Pa.

Radium and Roentgen Rays in Radiotherapy: Their Use and Limitations. William S. Newcomet, Philadelphia.

*SYMPOSIUM ON THE USE OF DRUGS IN SURGICAL PRACTICE*

Preparation of Patients for Operation. A. D. Whiting, Philadelphia.

Postoperative Treatment of Surgical Cases. George P. Müller, Philadelphia.

The Medical Treatment of Chronic Intestinal Stasis. W. A. Bastedo, New York.

An Examination of Some Commercial Preparations of Pituitary Extract Made from the Posterior Lobe of the Pituitary Body
GEORGE B. ROTH, Washington, D. C.

**Thursday, June 25—9 a. m.**

*SYMPOSIUM ON THE PREVENTION AND TREATMENT OF DIPHTHERIA*

Active Immunization in Diphtheria by Toxin-Antitoxin Mixtures. WILLIAM H. PARK, New York.

Diphtheria Antitoxin. SAMUEL S. WOODY, Philadelphia.

*SYMPOSIUM ON DIET IN TYPHOID FEVER*

Diet in Typhoid Fever. LEWELLYS F. BARKER, Baltimore.

The Effects of Food on Metabolism in Typhoid Fever.
WARREN COLEMAN, New York.

Dietetic Limitations in Typhoid Fever.
DAVID L. EDSALL, Boston.

The Value of Salicylates in Acute Articular Rheumatism.
JOSEPH L. MILLER, Chicago.

The Pharmacology of Sodium Tartrate.
WILLIAM SALANT, Washington, D. C.

**Thursday, June 25—2 p. m.**

JOINT MEETING WITH SECTION ON PREVENTIVE MEDICINE AND PUBLIC HEALTH

*SYMPOSIUM ON HOOKWORM DISEASE*

Etiology and Treatment of Hookworm Disease.
C. WARDELL STILES, Washington, D. C.

Treatment of Hookworm Disease.
A. T. MCCORMACK, Bowling Green, Ky.

*SYMPOSIUM ON PELLAGRA*

Pellagra. C. H. LAVINDER, Savannah, Ga.

## SECTION ON PATHOLOGY AND PHYSIOLOGY

MEETS IN PLAY-ROOM, HOTEL DENNIS

CHAIRMAN, WILLIAM OPHÜLS, SAN FRANCISCO; SECRETARY, A. J. CARLSON, CHICAGO

**Tuesday, June 23—2 p. m.**

Chairman's Address: Anatomic Structure and Function.
W. OPHÜLS, San Francisco.

Experimental Chronic Gastric Ulcer.
J. C. FRIEDMAN and W. W. HAMBURGER, Chicago.

Studies on Duodenal Obstruction. J. W. DRAPER, New York.

Roentgenographic Studies of the Function of the Ileocolic Valve. J. T. CASE, Battle Creek, Mich.

Studies in Experimental Diabetes.
F. M. ALLEN, San Diego, Cal.

Blood-Transfusion in Pancreatic Diabetes.
A. J. CARLSON, Chicago.

**Wednesday, June 24—9 a. m.**

*SYMPOSIUM ON NUTRITION*

JOINT MEETING WITH SECTION ON PRACTICE OF MEDICINE

(*For titles and authors of papers to be presented see program of Section on Practice of Medicine.*)

**Wednesday, June 24—2 p. m.**

*SYMPOSIUM ON SPECIFIC AND PROTECTIVE ENZYMES*

JOINT MEETING WITH SECTIONS ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY AND PHARMACOLOGY AND THERAPEUTICS

(*For titles and authors of papers to be presented see program of Section on Obstetrics, Gynecology and Abdominal Surgery.*)

**Thursday, June 25—9 a. m.**

Relation of Diet to Cancer. L. D. BULKLEY, New York.

The Influence of Heredity on the Incidence of Cancer in Mice. MAUDE SLYE, Chicago.

Abderhalden's Test in the Diagnosis of Cancer.
C. F. BALL, Rutland, Vt.

A Study of the Ferment Activity of the Blood-Serum during Pregnancy and under Normal and Pathologic Conditions by the Abderhalden Method.
F. H. FALLS and C. S. BACON, Chicago.

Adenomyoma of the Rectovaginal Septum.
D. S. D. JESSUP, New York.

Carcinoma of the Prostate.
B. F. MCGRATH, Rochester, Minn.

The Pineal Gland in Relation to Somatic, Sexual and Mental Development. C. P. MCCORD, Detroit.

**Thursday, June 25—2 p. m.**

Immunity in Tuberculosis.
G. B. WEBB and G. B. GILBERT, Colorado Springs, Colo.

The Selective Bactericidal Action of Gentian Violet.
J. W. CHURCHMAN, New Haven, Conn.

The Hectic-Weinberg Complement-Fixation Test as a Control over the Wassermann.
R. B. H. GRADWOHL, St. Louis.

The Pathologic Physiology of Arteriosclerosis.
L. F. BISHOP, New York.

Urea and Quinin Injection in Goiter.
L. F. WATSON, Oklahoma City.

The Parathyroid Glands. D. MARINE, Cleveland.

## SECTION ON STOMATOLOGY

MEETS IN CRAIG HALL

CHAIRMAN, WILLIAM C. FISHER, NEW YORK; SECRETARY, EUGENE S. TALBOT, CHICAGO

**Tuesday, June 23—2 p. m.**

Chairman's Address. WILLIAM C. FISHER, New York.

The Section of Stomatology as a Factor in the Evolution of Dental and Medical Science.
GEORGE V. I. BROWN, Milwaukee.

Mesothelial Tumors of the Jaw.
ROBERT H. IVY, Philadelphia.

Cystic Tumors of the Jaw. GORDEN NEW, Rochester, Minn.

Differential Diagnosis of Major Mouth Lesions.
STEWART L. MCCURDY, Pittsburgh, Pa.

Methods of Obtaining Dental Service in Hospitals by the Appointment of Interns.
HERBERT L. WHEELER, New York.

**Thursday, June 25—9:30 a. m.**

The Scientific Routine of Tooth-Brushing and Mouth-Cleaning. JOSEPH HEAD, Philadelphia.

Osteoplastic Surgery of the Face.
WAYNE W. BABCOCK, Philadelphia.

Fracture of the Inferior Maxilla.
HENRY S. DUNNING, New York.

Bacteriology of Alveolar Abscess.
THOMAS GILMER, Chicago.

Acute Parenchymatous Glossitis. VIRGIL LOEB, St. Louis.

**Thursday, June 25—2 p. m.**

The Peridental Membrane as a Source of Infection.
DANIEL H. SQUIRE, Buffalo, N. Y.

Mouth Infection in Relation to Nervous Affection.
C. B. CRAIG, New York

## SECTION ON NERVOUS AND MENTAL DISEASES

MEETS IN BRIGHTON CASINO

Chairman, W. W. Graves, St. Louis; Secretary, George A. Moleen, Denver

### Tuesday, June 23—2 p. m.

Chairman's Address: Some Factors Tending toward Adequate Instruction in Nervous and Mental Diseases.
W. W. Graves, St. Louis.

Juvenile Psychosis: Report of a Case.
H. H. Drysdale, Cleveland.

Tuberous Sclerosis and Other Unusual Features in Epilepsy.
N. S. Yawger, Philadelphia.

Nervous and Mental Disturbances Following Castration in Women. Alfred Gordon, Philadelphia.

Acute Myelitis, Secondary to Perirectal Abscess, Developing a Few Hours after Severe Fright.
William G. Spiller, Philadelphia.

### Wednesday, June 24—9 a. m.

Occlusion of the Posterior-Inferior Cerebellar Artery: Report of Cases. A. C. Gillis, Baltimore.

Cerebellar Symptoms and Localization. Illustrated by Lantern-Slides and Moving Pictures.
Charles K. Mills and T. H. Weisenburg, Philadelphia.

Results Following Seventy-Five Injections of Salvarsanized Serum.
C. Eugene Riggs and Ernest M. Hammes, St. Paul, Minn.

A Brief Report on Cases of Paresis Treated by Intraspinal Injections of Salvarsanized Serum.
L. B. Pilsbury, Lincoln, Neb.

The Value of Early Diagnosis in Syphilis of the Central Nervous System: Its Relation to Treatment.
Henry A. Cotton, Trenton, N. J.

### Wednesday, June 24—2 p. m.

The Borders of the Areas of Anesthesia, Analgesia and Thermo-Anesthesia in Lesions at the Different Levels of the Sensory Tract.
Otfrid Foerster, Breslau, Germany.

Ankylosis of the Shoulder-Joint in Association with Brachial Neuritis and Pulmonary Lesion of the Right Lung.
D. J. McCarthy, Philadelphia.

Tumors of the Crus. John H. W. Rhein, Philadelphia.

Landry's Paralysis. Report of a Case with Necropsy.
Edward D. Fisher, New York.

### Thursday, June 25—9 a. m.

*SYMPOSIUM ON THE PROBLEM OF THE PREVENTION OF NERVOUS AND MENTAL DISEASE*

A Brief Summary and Analysis of the Work Done by Psychanalysts, with Reference to the Diagnosis and Treatment of the Psychoses. James J. Putnam, Boston.

First Signs in Childhood of Compulsion Neuroses.
Smith Ely Jelliffe, New York.

The Diagnosis of Preinsane Temperaments During School Examinations. E. B. Hoag, Los Angeles.

Genetic Factors in One Hundred Cases of Psychoneuroses.
Donald Gregg, Brookline, Mass.

The "Not Insane" and "Voluntary" Admissions to the Psychopathic Hospital, Boston.
E. E. Southard, Boston.

Present Teaching of Psychiatry in American Medical Schools. Ross Moore, Los Angeles.

The Ideal Course in Psychiatry for Medical Schools.
H. Douglas Singer, Hospital, Ill.

### Thursday, June 25—2 p. m.

Some Experiences with Alcohol Injection in Trigeminal and Other Neuralgias.
Wilfred Harris, London, England.

Results of Psychanalytic Therapy in Dementia Praecox.
A. A. Brill, New York.

Kraepelin's Conception of Paraphrenia.
Morris J. Karpas, New York.

The Use of Celluloid Splints in the Treatment of Diseases of the Nervous System.
G. Wilse Robinson, Kansas City, Mo.

Subarachnoid Hemorrhage: A Contribution to the Subject of Spontaneous Hemorrhage.
S. Leopold, Philadelphia.

Acute Disseminated Sclerosis and Its Visual Symptoms.
Robert Foster Kennedy, New York.

A Case of Myasthenia Gravis.
Charles A. McKendree, Cromwell, Conn.

Mental Disease and the Transportation of Psychopathic Patients. Philip Coombs Knapp, Boston.

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## SECTION ON DERMATOLOGY

MEETS IN SEASIDE HOTEL

Chairman, Richard L. Sutton, Kansas City, Mo.; Secretary, Howard Fox, New York

### Tuesday, June 23—2 p. m.

Chairman's Address: The Future of Dermatology in America. Richard L. Sutton, Kansas City, Mo.

Granuloma Annulare, with a Report of Four Cases.
M. B. Hartzell, Philadelphia.

The Necessity for the Establishment of a National Leprosarium. W. C. Rucker, Washington, D. C.

The National Care of Leprosy. Isadore Dyer, New Orleans.

A New Method of Treatment of Lupus Vulgaris.
M. L. Heidingsfeld, Cincinnati.

The Desiccation Treatment of Congenital and New Growths of the Skin and Mucous Membranes. A Lantern Demonstration. William Clark, Philadelphia.

### Wednesday, June 24—9 a. m.

A Few Practical Points on the Treatment of Leg Ulcers.
A. Ravogli, Cincinnati.

Unusual Types of Diphtheria of the Skin. Report of Two Cases. Frank Crozer Knowles, Philadelphia.

The Diseases and New Growths of the Skin of Lymphatic Origin. G. Arndt, Berlin.

Summary of Research Studies in Psoriasis.
Jay F. Schamberg, R. W. Raiziss and John A. Kolmer, Philadelphia.

Further Experiences with Intravenous Autoserum Injections in the Treatment of Inveterate Skin Diseases.
William S. Gottheil and David I. Satenstein, New York.

The Use of Salvarsan in Non-Syphilitic Diseases.
William H. Best, Brooklyn.

### Wednesday, June 24—2 p. m.

A Statistical Study of Syphilis. The Relation of Its Symptoms to Subsequent Tabes Dorsalis or General Paralysis. Charles J. White, Boston.

Syphilis in the American Negro.
H. H. Hazen, Washington, D. C.

Observations on Strains of the Pallida Group of Spirochetes.
Henry J. Nichols, Washington, D. C.

A Sero-Enzyme Test for Syphilis. F. W. Baeslack, Detroit.

The Treatment of Syphilis of the Nervous System.
John A. Fordyce, New York.

The Treatment of Syphilis of the Nervous System by Intradural Injections of Neosalvarsan.
Udo J. Wile, Ann Arbor, Mich

Cerebrospinal Examinations in "Cured" Syphilis in Which the Biologic Method Has Been Used as a Control.
B. C. Corbus, Chicago.

The Intravenous Administration of Mercury in Syphilis.
Jerome Kingsbury and Paul E. Bechet, New York.

**Thursday, June 25—9 a. m.**

Association of Erythema Nodosum and Tuberculosis.
O. H. Foerster, Milwaukee, Wis.

Pemphigoid in the New-Born (Pemphigus Neonatorum) with Report of an Epidemic.
H. N. Cole and H. O. Ruh, Cleveland.

Radium: Its Use and Limitations in Skin-Diseases.
Frank E. Simpson, Chicago.

An Unusual Case of Bromoderma of the Legs.
Ludwig Weiss, New York.

A Case of White-Spot Disease Occurring on the Penis and Scrotum.
George M. MacKee and Fred Wise, New York.

Sarcoid of Boeck. S. E. Sweitzer, Minneapolis.

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## SECTION ON PREVENTIVE MEDICINE AND PUBLIC HEALTH

MEETS IN ST. PAUL'S CHURCH

Chairman, M. P. Ravenel, Madison, Wis.; Secretary, C. Hampson Jones, Baltimore

**Tuesday, June 23—2 p. m.**

Chairman's Address and Oration: The Education of Health Officers. M. P. Ravenel, Madison, Wis.

Report of Committee on Poverty.
W. A. Evans, Chicago; Pauline M. Townsend-Hanson, Marshalltown, Iowa; Mary Lawson Neff, Fairfield, Iowa; J. N. Hurty, Indianapolis; S. C. Knopf, New York.

Report of Committee on Cerebrospinal Meningitis.
R. Q. Lillard, Nashville, Tenn.; James A. Hayne, Columbia, S. C.; R. H. Von Ezdorf, Mobile, Ala.

**Wednesday, June 24—9 a. m.**

Present-Day Public-Health Activities.
Francis E. Fronczak, Buffalo, N. Y.

The Importance of Proper Sanitary Measures in the Preparation of Foodstuffs.
M. Clayton Thrush, Philadelphia.

Criticism of an Attempt to Prove that a Public-Health Laboratory May Distribute Infection.
John S. Fulton, Baltimore.

Some Important Phases of Railway Sanitation.
N. E. Campbell, Chicago.

**Wednesday, June 24—2 p. m.**

Principles of State Control of Tuberculosis with Special Reference to Pennsylvania's System.
Albert P. Francine, Philadelphia.

Enemies of the Consumptive. C. Am Ende, New York.

The Prevention of Tuberculosis by Periodic Examinations of Schoolchildren. Mary E. Lapham, Highlands, N. C.

Certain Problems in Infant Mortality.
C. J. Hunt, Harrisburg, Pa.

**Thursday, June 25—9 a. m.**

County Health Organizations in the United States.
Louis I. Dublin, New York.

School-Spread of Contagious Diseases and How to Control It. Myer Solis-Cohen, Philadelphia.

**Thursday, June 25—2 p. m.**

*SYMPOSIUMS ON PELLAGRA AND HOOKWORM*

JOINT MEETING WITH SECTION ON PHARMACOLOGY AND THERAPEUTICS

*(For titles and authors of papers to be presented see program of Section on Pharmacology and Therapeutics.)*

## SECTION ON GENITO-URINARY DISEASES

MEETS IN ST. PAUL'S CHURCH

Chairman, Arthur L. Chute, Boston; Secretary, Louis E. Schmidt, Chicago

**Tuesday, June 23—2 p. m.**

The Value of Hydrotherapy in Urologic Cases.
W. F. Martin, Battle Creek, Mich.

Transplantation of Fat in Genito-Urinary Surgery.
Gustav Kolischer, Chicago.

The Ultimate Results of Genital Tuberculosis in the Male.
J. Dellinger Barney, Boston.

The Diagnosis and Treatment of Gonorrhea.
C. C. Warden, Los Angeles.

Endoscopic Treatment of Nocturnal Emissions.
Alexander Randall, Philadelphia.

The Radical Removal of Certain Types of Diseased Verumontanum with Notes on Their Pathology.
A. G. Rytina, Baltimore.

The Colliculus Seminalis as a Factor in Chronic Diseases of the Urethra. A. L. Wolbarst, New York.

**Wednesday, June 24—9 a. m.**

Operative Treatment of Infections of the Seminal Duct.
William T. Belfield, Chicago.

Permanent Epididymotomy. V. Lespinasse, Chicago.

The Treatment of Hydrocele with Special Reference to Phenol Injections. R. H. Herbst, Chicago.

Malignant Disease of the Testes and Its Operative Treatment. Frank Hinman, Baltimore.

A Method of Controlling Hemorrhage after Suprapubic Removal of the Hypertrophied Prostate.
E. L. Keyes, Jr., New York.

The Rôle of Functional Kidney Tests and the Preoperative and Postoperative Treatment in the Reduction of Prostatectomy Mortality. B. A. Thomas, Philadelphia.

Some Unusual Urologic Conditions and Their Surgical Features. Hugh H. Young, Baltimore.

Suprapubic Prostatectomy.
Charles E. Barnett, Fort Wayne, Ind.

**Wednesday, June 24—2 p. m.**

Chairman's Address. Arthur L. Chute, Boston.

Extraperineal Rupture of the Bladder. Its Surgical Management. E. Fuller, New York.

Surgery of the Bladder. J. Bentley Squier, New York.

Diverticula of the Urinary Bladder with Report of Cases.
William E. Lower, Cleveland.

Influence of Collargol Injections on the Kidney.
D. N. Eisendrath, Chicago.

Renal Infection; a Further Experimental Study of Its Relations to Impaired Ureteric Function.
William H. Barber and J. W. Draper, New York.

Observations on Renal Functions Determined by Ureteral Catheterization and Phenolsulphonephthalein Test.
George G. Smith, Boston.

**Thursday, June 25—9 a. m.**

A Study of the Action of the Colon Bacillus on the Kidney.
I. S. Koll, Chicago.

The Treatment of Pyelitis. John Geraghty, Baltimore.

Continuous Painless Renal Hemorrhage and Its Treatment.
William M. Spitzer, Denver.

The Value of Renal Functional Tests in Surgical Conditions of the Urinary Tract.
W. F. Braasch and G. J. Thomas, Rochester, Minn.

Differential Diagnosis of Nephrolithiasis and Renal Tuberculosis by Roentgenography.
M. Krotoszyner, San Francisco.

**Thursday, June 25—2 p. m.**

Surgical Interference in Nephritis. L. E. Schmidt, Chicago.

Acute Unilateral Hematogenous Infection of the Kidney.
John H. Cunningham, Jr., Boston.

Hemic Infection of the Kidney.
Granville MacGowan, Los Angeles.

## SECTION ON HOSPITALS

MEETS IN THE MARLBOROUGH-BLENHEIM HOTEL

Chairman, L. B. Baldwin, Minneapolis; Secretary, John A. Hornsby, Chicago

**Tuesday, June 23—2 p. m.**

Chairman's Address. L. B. Baldwin, Minneapolis.

*SYMPOSIUM ON HOSPITAL CARE OF COMMUNICABLE DISEASES*

The Care of Communicable Diseases in General Hospital.
Robert J. Wilson, New York.

Administrative Technic in the Special Communicable Disease Hospital. D. L. Richardson, Providence, R. I.

Communicable Diseases as a Public-Health Problem.
J. W. Kerr, Washington, D. C.

**Wednesday, June 24—9 a. m.**

*SYMPOSIUM ON PHYSICAL THERAPY IN THE MODERN HOSPITAL*

Physical Therapy in Its Relation to the Hospital Patient from the Point of View of the Internist.
Walter L. Bierring, Des Moines, Iowa.

Six Years' Experiences in the Medicomechanical Department of the Massachusetts General Hospital.
C. Herman Bucholz, Boston.

Applied Physical Therapy. Peter J. Peel, Chicago.

**Wednesday, June 24—2 p. m.**

Hospital Preparation for Successful Surgery.
Thomas A. Shallon, Philadelphia.

Principles of Clinical Organization.
H. S. Plummer, Rochester, Minn.

Report of the Committee on Hospital Abuses of Charity.
Joseph D. Farrar, Philadelphia.

**Thursday, June 25—9 a. m.**

Election of Officers.

*SYMPOSIUM ON AIR PROBLEMS IN HOSPITALS*

Tests of Ventilating Plants. E. H. Bass, Minnesota.

Air Examination in Hospitals.
C. E. A. Winslow, New York.

Hospital Experiments with Air. W. A. Smith, Baltimore.

Possibilities of Window Ventilation.
S. S. Goldwater, New York.

Possibilities of Mechanical Ventilation.
Arthur K. Ohmes, New York.

Comparisons of Old and New Hospitals.
T. J. van der Brent, New York.

**Thursday, June 25—2 p. m.**

*SYMPOSIUM ON SURGICAL SERVICE IN THE HOSPITAL*

JOINT MEETING WITH SECTION ON SURGERY IN MORRIS GUARDS' HALL

*(For titles and authors of papers to be presented, see program of Section on Surgery.)*

## SECTION ON ORTHOPEDIC SURGERY

MEETS IN G. A. R. HALL

Chairman, Leonard W. Ely, San Francisco; Secretary, Emil S. Geist, Minneapolis

**Tuesday, June 23—2 p. m.**

Chairman's Address: Orthopedic Surgery: Its Scope and Its Future. Leonard W. Ely, San Fancisco.

Some Remarks on the Etiology and Pathology of Bone and Joint Tuberculosis.
John Fraser, Edinburgh, Scotland.

The Orthopedist and the Treatment of Chronic Diseases.
J. E. Goldthwait, Boston.

Ankylosis: An Experimental Study.
Nathaniel Allison, St. Louis.

Arthroplasty with the Aid of Animal Membrane.
W. S. Baer, Baltimore.

Arthroplasty of the Elbow-Joint.
W. Russell MacAusland, Boston.

**Wednesday, June 24—9 a. m.**

A Neglected Type of Ankle-Fracture.
F. J. Cotton, Boston.

The Three Cardinal Signs in the Diagnosis of Fractures Into or Near Joints. W. G. Stern, Cleveland.

The Treatment of Fractures of Both Bones of the Legs.
Frank E. Peckham, Providence, R. I.

Necrotic Bone and the Subsequent Changes Which It Undergoes. D. B. Phemister, Chicago.

Results of Operative Procedures in Resection of the Knee.
M. S. Henderson, Rochester, Minn.

The Sacro-Iliac and Sacrovertebral Articulations.
C. A. Erdman, Minneapolis.

**Wednesday, June 24—2 p. m.**

Coxa Vara. John Ridlon, Chicago.

Coxa Vara Adolescentium.
Arthur Steindler, Des Moines, Iowa.

Scoliosis. E. G. Abbott, Portland, Me.

Congenital Scoliosis; with Specimen Including the Thorax.
H. B. Thomas, Chicago.

The Relation of Bony Anomalies of the Lumbar and Sacral Spine to the Cause and Treatment of Scoliosis.
Z. B. Adams, Boston.

Bone and Joint Cases; with Lantern-Slide and Moving-Picture Illustrations.
Michael Hoke and Frederick Hodgson, Atlanta.

Moving Pictures of Deformities in Children.
James K. Young, Philadelphia.

**Thursday, June 25—9 a. m.**

Original Use of the Bone-Graft in Pott's Disease, Fractures and Other Conditions. Fred H. Albee, New York.

Hibbs' Osteoplastic Operation for Pott's Disease of the Spine. Results of Clinical Observations and Animal Experimentation. B. P. Farrell, New York.

Recurrent Spondylolisthesis with Paralysis. Bone-Splint Transplantation; Recovery.
F. Edwin W. Ryerson, Chicago.

Use of Transplant from Tibia as a Unit of a Joint.
John F. Golden, Chicago.

Observations on Bone Transplantation (Albee's Method) for the Cure of Pott's Disease.
Charles M. Jacobs, Chicago.

**Thursday, June 25—2 p. m.**

The Psychic Element Manifested in Many Cases of Orthopedic Surgery. B. E. McKenzie, Toronto.

The Relation of Posture and Intestinal Derangements to Coxitis. Robert B. Osgood, Boston.

Mechanics and Pathology of the Hip in Their Relation to the Diagnosis and Treatment of Diseases of the Hip-Joint. P. W. Nathan, New York.

Syphilitic Arthritis; the Question of Diagnosis.
Archer O'Reilly, St. Louis.

Syphilis of the Knee-Joint. John L. Porter, Chicago.

Syphilitic Bone and Joint Conditions.
Henry W. Frauenthal, New York.

# THE SCIENTIFIC EXHIBIT

### Demonstration of the Results of Research Which Promise to Be of Great Interest

The flattering prospects for the Scientific Exhibit show healthful evolution along certain lines. Realization is now being achieved of the appeal so often made for research workers to present the fruits of their investigations as exhibits which they can demonstrate systematically. The fact has finally dawned on them that the Scientific Exhibit offers an extraordinary opportunity; and the general membership gains a variety from the conventional program which is refreshing and profitable. It keeps research workers in touch with one another and gives the practitioner an insight into the most advanced factors in medical progress. Representing the evolutionary progress of the Scientific Exhibit, there will be demonstrated at the Atlantic City session no less than a dozen research exhibits of great interest.

Among the subjects illuminated by exhibits, none will receive greater emphasis than the cancer problem. Both to the public and to the professional mind this topic appeals more strongly than any other. It is particularly appropriate, therefore, that a series of exhibits showing all the late things in cancer research will be presented, chiefly under the auspices of the American Association for Cancer Research. This will include, besides the results of animal experimentation, demonstrations relating to radium and its derivatives, showing methods of preparation and application.

Some striking exhibits will show the experimental production in animals of erythema nodosum, pneumonia, nephritis and renal infarcts from collargol injections.

A new instrument of precision in clinical study having extraordinary features will be shown for the first time. It is presented as a free-will offering from the dental to the medical profession, by a distinguished member of the former.

Roentgenography will of course occupy a prominent place. Those who contemplate participating should write to Dr. R. D. Carman of Rochester, Minn., indicating the subject and the number and size of the plates which it is desired to show.

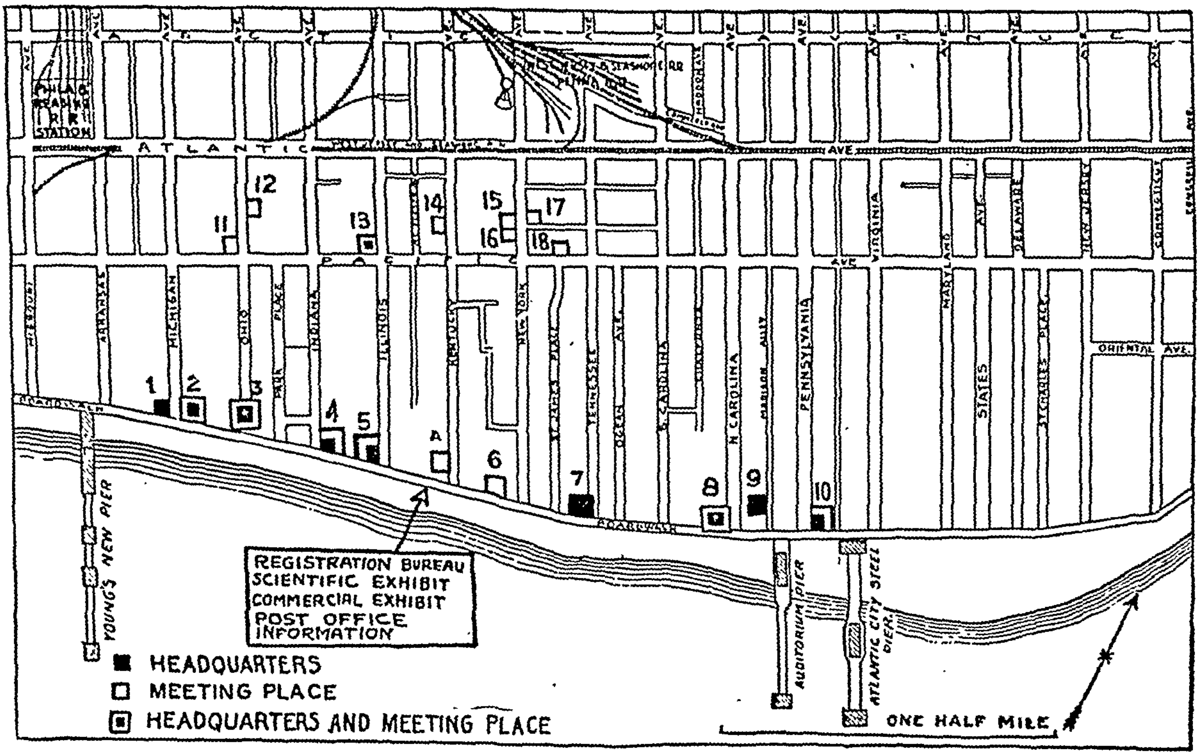
Public health progress will be shown in motion-pictures, and there will be exhibits dealing with hookworm, pellagra, cancer prevention and other new phases of public health propaganda.

In accordance with custom, a gold medal will be awarded to the best research exhibit relating to any of the fundamental branches of medicine. Not all research exhibits, however, are *obliged to be entered in competition.* Certificates of honor will be granted to a few of the most meritorious exhibits.

If they have not already done so, all those who contemplate participation should at once notify the director, Dr. F. B. Wynn, 311 Newton Claypool Building, Indianapolis. Statement should be made of the scope and character of what it is proposed to show and the amount and character of space desired.

Exhibits should be shipped in ample time to reach Atlantic City not later than June 20. This will enable installation by Monday and readiness for the stream of visitors early Tuesday morning. The exhibits should be addressed to Dr. Frank B. Wynn, Director Scientific Exhibit, American Medical Association, Atlantic City, N. J., care Exposition Building. The exhibitor should indicate on the box by whom sent, and write a letter to the director so that it will arrive not later than June 19, addressed in care of Dr. I. E. Leonard, Atlantic City, stating how the exhibit was shipped, whether or not it is to be opened and when he will arrive to supervise the installation of the exhibit.

# ATLANTIC CITY INFORMATION



## KEY TO MAP

Alamac (7)
Apollo Theater (6)
Ascension Church (14)
Brighton (4)
Chalfonte (8)
Commercial Exhibit (A)
Craig Hall (13)
Dennis (2)
Grammar School (12)
G. A. R. Hall (17)
Haddon Hall (9)
Information Bureau (A)
Marlborough-Blenheim (3)
Morris Guards Hall (15)
Odd Fellows Hall (16)
Parochial School (18)
Post Office—A. M. A. (A)
Registration Bureau (A)
St. Paul's Church (11)
Scientific Exhibit (A)
Seaside (10)
Shelburne (1)
Traymore (5)

## TABLE OF DAILY RATES AND ACCOMMODATIONS OFFERED BY ATLANTIC CITY HOTELS

| Hotels Grouped by Streets | Plan | Rooms Without Private Bath | | | | Rooms with Private Bath | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | For One Person | | For Two Persons | | For One Person | | For Two Persons | |
| | | Single Room | Double Room | Double Room | Extra Large Room | Single Room | Double Room | Double Room | Extra Large Room |
| On the Boardwalk— | | | | | | | | | |
| Royal Palace | American | $3.50 | $4.00 | $7.00 to | $9.00 | $5.00 to | $8.00 | $10.00 to | $14.00 |
| Rudolf | American | 3.50 | 4.00 | 7.00 | 8.00 | 5.00 | 6.00 | 9.00 to | 12.00 |
| St. Charles | American | 3.50 | 4.50 | 6.00 to | 8.00 | 6.00 | 7.00 | 8.00 to | 10.00 |
| Seaside | American | 3.50 | 5.00 | 6.00 | 7.00 | 6.00 | 7.00 | 10.00 | 12.00 |
| Haddon Hall | American | 3.50 | 5.00 | 6.00 | 8.00 | 6.00 | 7.00 | 10.00 | 14.00 |
| Chalfonte | American | 3.50 to | 4.50 | 6.00 to | 8.00 | .... | 6.00 | 10.00 | 12.00 |
| Alamac | American | 4.00 | 5.00 | 8.00 to | 10.00 | 6.00 | 7.00 | 10.00 to | 14.00 |
| Alamac | European | 2.00 | 3.00 | 4.00 | 5.00 | 4.00 | 5.00 | 6.00 | 8.00 |
| Traymore | American | 4.00 | 6.00 | 8.00 | 9.00 | 6.00 | 13.00 | 10.00 | 16.00 |
| Brighton | American | 4.50 | 7.00 | 9.00 to | 16.00 | 7.00 | 9.00 | 11.00 to | 18.00 |
| Marlborough-Blenheim | American | 5.00 | 6.00 | 9.00 | 10.00 | 6.00 to | 12.00 | 10.00 to | 18.00 |
| Marlborough-Blenheim | European | 3.00 | 4.00 | 5.00 | 6.00 | 4.00 to | 10.00 | 6.00 to | 14.00 |
| Dennis | American | 4.00 | 5.00 | 7.00 | 8.00 | 6.00 to | 9.00 | 10.00 to | 16.00 |
| Shelburne | American | 5.00 | 6.00 | 10.00 | 12.00 | 7.00 | 8.00 | 12.00 | 15.00 |
| Shelburne | European | 3.00 | 4.00 | 6.00 | 8.00 | 5.00 | 6.00 | 8.00 | 10.00 |
| Chelsea | American | 5.00 | 6.00 | 8.00 | 10.00 | 7.00 | 8.00 | 10.00 | 12.00 |
| Pacific Avenue— | | | | | | | | | |
| Hall's Cottage | American | 2.00 | 2.00 | 4.00 | 4.00 | .... | .... | .... | .... |
| Hall's Cottage | European | 1.00 | 2.00 | 2.00 | 2.00 | .... | .... | .... | .... |
| McGinley | American | 2.00 | 3.00 | 3.00 | 4.00 | .... | .... | .... | .... |
| McGinley | European | 1.00 | 2.00 | 2.00 | 3.00 | .... | .... | .... | .... |
| Oriental Avenue— | | | | | | | | | |
| Touraine | American | 2.50 | 3.00 | 5.00 | .... | 4.00 | 5.00 | 7.00 | 8.00 |
| Rhode Island Avenue— | | | | | | | | | |
| Westmont | American | 2.50 | 3.00 | 5.00 | 6.00 | 4.00 | 5.00 | 7.00 | 8.00 |
| Massachusetts Avenue— | | | | | | | | | |
| Phillips House | American | 2.50 | 3.50 | 5.00 to | 8.00 | .... | 5.00 | 8.00 | 8.00 |
| New Jersey Avenue— | | | | | | | | | |
| Pierrepont | American | 3.50 | 4.00 | 7.00 | 8.00 | 4.50 | 5.00 | 9.00 | 10.00 |
| Mrs. Lancken | European | 1.00 | 1.00 | 2.00 | 2.00 | .... | .... | .... | .... |
| Dowling Cottage | American | 2.00 | 2.50 | 4.00 | .... | .... | 3.00 | 5.00 | .... |
| St. Charles Place — | | | | | | | | | |
| Raleigh | American | 3.00 | .... | 5.00 | 6.00 | 4.00 | .... | 7.00 | 8.00 |
| Maryland Avenue— | | | | | | | | | |
| Goodfellow | American | 2.00 | 3.00 | 4.00 | 5.00 | .... | 3.00 | 5.00 | .... |
| Halcyon Hall | American | 2.00 | 2.50 | 4.00 | 5.00 | .... | .... | .... | .... |
| Halcyon Hall | European | 1.00 | 1.50 | 2.00 | 3.00 | .... | .... | .... | .... |
| Lamborn | American | 2.50 | 3.50 | 5.00 | .... | 4.00 | .... | 8.00 | .... |
| Virginia Avenue— | | | | | | | | | |
| Whittier | American | 2.00 | 2.50 | 4.00 | .... | .... | .... | .... | .... |
| Berkshire Inn | American | 2.00 | 3.00 | 4.00 | 6.00 | 3.00 | 4.00 | 6.00 | 7.00 |
| Berkshire Inn | European | 1.00 | 1.50 | 2.00 to | 3.00 | .... | .... | .... | .... |
| Avon Inn | American | 2.00 | 2.00 | 3.50 | 4.00 | 2.50 | 3.00 | 5.00 | 5.50 |
| Avon Inn | European | 1.00 | 1.00 | 2.00 | 2.50 | 2.00 | 2.00 | 3.00 | 3.00 |
| Calvert | American | 2.00 | 2.50 | 4.00 | 5.00 | .... | 5.00 | 8.00 | 10.00 |
| Calvert | European | 1.00 | 1.50 | 2.00 | 3.00 | .... | 3.00 | 6.00 | 8.00 |
| Grand Atlantic | American | 2.50 | 3.00 | 5.00 to | 7.00 | 4.00 to | 5.00 | 7.00 to | 10.00 |
| Bothwell | American | 2.50 | .... | 5.00 | .... | 4.00 | .... | 8.00 | .... |
| Wiltshire | American | 2.50 | 3.00 | 5.00 | 6.00 | .... | .... | 8.00 | 10.00 |
| Sothern | American | 2.50 | 3.00 | 5.00 | 6.00 | 3.50 | 4.00 | 7.00 | 8.00 |
| Morton | American | 3.00 | 3.50 | 5.00 | 6.00 | .... | .... | 7.00 | 8.00 |
| Raymond | American | .... | 2.50 | 4.00 to | 6.00 | .... | .... | 7.00 to | 10.00 |
| Absecon | American | 2.50 | 3.00 | 5.00 | 6.00 | .... | .... | 7.00 | 7.00 |
| Absecon | European | 1.50 | .... | 2.00 | 3.00 | .... | .... | 5.00 | 5.00 |
| Albemarle | American | 2.50 | .... | 4.00 | .... | | | .... | .... |
| Rita Hall | American | 2.00 to | 3.00 | 4.00 to | 6.00 | 3.00 to | 4.00 | 6.00 to | 7.00 |
| Rita Hall | European | 1.00 to | 1.50 | 2.00 to | 3.00 | .... | .... | .... | .... |
| Wright's Cattage | American | 2.00 to | 3.00 | 4.00 to | 6.00 | .... | .... | .... | .... |
| Wright's Cottage | European | 1.00 to | 2.00 | 2.00 to | 4.00 | .... | .... | .... | .... |
| Pennsylvania Avenue— | | | | | | | | | |
| Melrose Hall | American | 2.50 | 3.00 | 5.00 | 6.00 | 3.00 | 3.50 | 6.00 | 7.00 |
| Wynnefield | American | 2.00 | 2.50 | 4.00 | 5.00 | .... | .... | 6.00 | 7.00 |
| Wynnefield | European | 1.00 | 1.50 | 2.00 | 3.00 | .... | .... | 4.00 | 5.00 |
| New Chatham | American | 2.50 | 3.00 | 5.00 | 6.00 | .... | .... | .... | .... |
| Stevenson | American | 2.50 | 3.50 | 5.00 | .... | .... | 3.50 | 6.00 | .... |
| North Carolina Avenue— | | | | | | | | | |
| Colonial | American | 2.50 | 3.00 | 6.00 | 6.00 | 4.00 | 4.00 | 8.00 | 8.00 |
| South Carolina Avenue— | | | | | | | | | |
| Dixie | American | 2.00 | 2.00 | 3.00 | 3.00 | 2.50 | 2.50 | 5.00 | 5.00 |
| Dixie | European | 1.00 | 1.00 | 2.00 | 2.00 | 1.50 | 1.50 | 3.00 | 3.00 |
| Iroquois | American | 3.00 | 4.00 | 5.00 | 6.00 | 5.00 | 6.00 | 7.00 | 8.00 |
| Iroquois | European | 1.50 | 2.00 | 2.00 | 3.00 | 3.00 | 4.00 | 5.00 | 6.00 |
| New Princess | American | 3.00 | .... | 5.00 | 6.00 | 4.00 | .... | 8.00 | .... |
| New Princess | European | 1.50 | .... | .... | .... | .... | .... | .... | .... |
| Radnor | American | 1.50 | 2.50 | 3.00 | 4.00 | .... | .... | .... | .... |
| Radnor | European | .75 | 1.50 | 1.50 | 2.00 | .... | .... | .... | .... |
| New England | American | 2.50 to | 3.00 | 5.00 to | 6.00 | 4.00 | .... | 7.00 | .... |
| Silverside | American | 3.00 | 3.50 | 5.00 | 6.00 | .... | .... | .... | .... |
| Silverside | European | 1.50 | 2.00 | 2.00 | 3.00 | .... | .... | .... | .... |
| Ocean Avenue— | | | | | | | | | |
| Bon Air | American | 2.00 | .... | 3.50 | 4.00 | .... | .... | .... | .... |
| Tennessee Avenue— | | | | | | | | | |
| National | European | 1.00 to | 2.00 | 2.00 to | 3.00 | .... | .... | .... | .... |
| Kenwood | American | 2.00 | 2.50 | 3.00 | 4.00 | .... | .... | .... | .... |
| Continental | American | 2.00 | 2.50 | 4.00 | 4.00 | 3.50 | 4.00 | 6.00 | 7.00 |
| Continental | European | 1.00 | 1.50 | 2.00 | 3.00 | 1.50 | 2.00 | 3.00 | 4.00 |
| Elberon | American | 1.50 | 2.50 | 4.00 | 5.00 | 3.50 | .... | 6.00 | 7.00 |
| Elberon | European | 1.00 | 1.50 | 2.00 | 2.50 | .... | .... | .... | .... |
| Louvan | American | 2.00 | 2.50 | 4.00 | .... | .... | .... | .... | .... |
| Tracy | American | 2.00 | 3.00 | 4.00 | .... | .... | .... | .... | .... |
| Fredonia | American | 2.50 | 3.00 | 4.00 to | 7.00 | 3.50 to | 7.00 | 5.00 to | 6.00 |
| Fredonia | European | 1.50 | 2.00 | 2.00 | 3.00 | 2.50 | 3.00 | .... | .... |
| Howard | American | 2.00 | 2.50 | 4.00 | 4.50 | .... | .... | .... | .... |
| Howard | European | 1.00 | 1.50 | 2.00 | 2.50 | .... | .... | .... | .... |
| Greater Pittsburgh | American | 1.75 | 2.00 | 2.50 | 3.00 | .... | .... | .... | .... |
| Greater Pittsburgh | European | 1.00 | 1.25 | 1.50 | 2.00 | .... | .... | .... | .... |
| Beaumont | American | 2.00 | 2.50 | 3.00 | 4.00 | .... | .... | .... | .... |
| Beaumont | European | 1.00 | 2.00 | 2.00 | 2.50 | .... | .... | .... | .... |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| St. James Place— | | | | | | | | | | | | |
| Sea Crest | American | 2.00 | | .... | .... | | .... | .... | | .... | .... | .... |
| Sea Crest | European | 1.00 | | .... | .... | | .... | .... | | .... | .... | .... |
| Flanders | American | 1.50 | | 2.00 | 3.00 | | 4.00 | .... | | .... | .... | .... |
| Elwood | American | 2.00 | | 2.50 | 4.00 | | 5.00 | .... | | 3.50 | 5.00 | 6.00 |
| Elwood | European | 1.00 | | 1.50 | 2.00 | | 3.00 | .... | | 2.00 | 3.00 | 4.00 |
| Devonshire | American | 2.50 | | 3.00 | 4.00 | to | 6.00 | .... | | .... | 6.00 | .... |
| St. James | American | 2.00 | | 2.50 | 3.50 | | 4.00 | .... | | .... | .... | .... |
| New York Avenue— | | | | | | | | | | | | |
| Victoria | American | 2.00 | | 3.00 | 4.00 | | 4.00 | .... | | .... | .... | .... |
| Victoria | European | 1.00 | | 1.00 | 2.00 | | 2.00 | .... | | .... | .... | .... |
| Mervine | American | 2.50 | | 3.00 | 5.00 | | 6.00 | .... | | 5.00 | 8.00 | 8.00 |
| Mervine | European | 1.00 | | 1.50 | 2.50 | | 3.00 | .... | | 3.00 | 5.00 | 6.00 |
| Netherland | American | 2.00 | | 2.50 | 4.00 | | 4.00 | 3.50 | | .... | 6.00 | .... |
| Waldorf | American | 2.50 | | 2.50 | 4.00 | | 4.00 | .... | | .... | .... | .... |
| Bellville | American | 1.50 | to | 3.00 | 3.00 | to | 6.00 | .... | | .... | .... | .... |
| Bellville | European | 1.00 | | 1.50 | 2.00 | | 8.00 | .... | | .... | .... | .... |
| New Hygeia | American | 1.50 | | 1.75 | 2.75 | | 3.00 | .... | | .... | .... | .... |
| New Hygeia | European | .75 | | 1.00 | 1.50 | | 1.75 | .... | | .... | .... | .... |
| Kentucky Avenue— | | | | | | | | | | | | |
| Barnay's | European | 3.00 | | 5.00 | 5.00 | | 7.00 | 4.00 | to | 7.00 | 6.00 | 8.00 |
| New Clarion | American | 2.00 | to | 3.50 | 4.00 | to | 6.00 | 3.00 | to | 4.50 | 5.00 | .... |
| New Clarion | European | 1.00 | | 1.50 | 2.00 | | 3.00 | .... | | .... | .... | .... |
| Frontenac | American | 2.50 | | 2.50 | 4.00 | | 5.00 | .... | | .... | .... | .... |
| Monticello | American | 2.50 | | 3.00 | 4.00 | | 5.00 | 4.00 | | 5.00 | 6.00 | 7.00 |
| Monticello | European | 1.50 | | 2.00 | 2.00 | | 3.00 | 2.50 | | 3.50 | 3.50 | 5.00 |
| Westminster | American | 2.00 | | 2.50 | 4.00 | | 5.00 | 3.00 | | 4.00 | 5.00 | 6.00 |
| Westminster | European | 1.00 | | 1.50 | 2.00 | | 3.00 | 2.00 | | 2.50 | 3.00 | 4.00 |
| Silverton | American | 1.50 | to | 2.50 | 3.00 | | 4.00 | .... | | .... | .... | .... |
| Illinois Avenue— | | | | | | | | | | | | |
| Craig Hall | American | 2.50 | | 3.00 | 5.00 | | 6.00 | 3.50 | | 4.00 | 6.00 | 7.00 |
| Park Place— | | | | | | | | | | | | |
| Glaslyn-Chatham | American | 2.50 | | 3.00 | 5.00 | | .... | .... | | .... | 8.00 | .... |
| Michigan Avenue— | | | | | | | | | | | | |
| Pennhurst | American | 3.00 | | 3.00 | 5.00 | | 6.00 | 4.00 | to | 5.00 | 7.00 | 8.00 |
| Arlington | American | 2.50 | | 3.00 | 4.00 | | 5.00 | .... | | 5.00 | 7.00 | 8.00 |
| Arlington | European | 1.00 | | 1.50 | 2.00 | | 3.00 | .... | | .... | .... | .... |
| Edison | American | 2.00 | | 2.50 | 3.50 | | 4.00 | 2.50 | | 3.00 | 5.00 | 5.50 |
| Edison | European | 1.00 | | 1.50 | 2.00 | | 2.50 | 1.50 | | 2.00 | 3.00 | 3.50 |
| Francis | American | 1.50 | | 2.00 | 3.00 | | 4.00 | 3.50 | | 4.00 | 5.00 | 5.50 |
| Arkansas Avenue— | | | | | | | | | | | | |
| Emmett | American | 1.25 | to | 2.00 | 2.50 | | 3.00 | .... | | .... | .... | .... |
| Emmett | European | .50 | to | 1.00 | 1.00 | | 1.50 | .... | | .... | .... | .... |
| Georgia Avenue— | | | | | | | | | | | | |
| Miller Cottage | American | 1.50 | | 2.00 | 3.00 | | 3.50 | .... | | .... | .... | .... |

## MEETING-PLACES AND HEADQUARTERS

The numerals refer to the map, p. 1607.

BOARD OF TRUSTEES: Directors' Room, Marlborough-Blenheim (3).

JUDICIAL COUNCIL: Marlborough-Blenheim (3).

HOUSE OF DELEGATES: Traymore Solarium (5).

COUNCIL ON HEALTH AND PUBLIC INSTRUCTION: Marlborough-Blenheim (3).

GENERAL MEETING: Apollo Theater (6).

SCIENTIFIC EXHIBIT, COMMERCIAL EXHIBIT, REGISTRATION BUREAU, INFORMATION, TELEPHONES AND BRANCH POST-OFFICE: Exposition Building, Kentucky Avenue and Boardwalk (A).

### *SECTION, HOTEL HEADQUARTERS AND MEETING-PLACES*

PRACTICE OF MEDICINE: Hotel Dennis (2)—St. Paul's Church (11).

SURGERY: Hotel Chalfonte (8)—Morris Guards' Hall (15).

OBSTETRICS AND GYNECOLOGY: Haddon Hall (9)—Morris Guards' Hall (15).

ORTHOPEDIC SURGERY: Hotel Chalfonte (8)—G. A. R. Hall (17).

OPHTHALMOLOGY: Hotel Traymore (5)—Parochial School (18)—Marlborough-Blenheim (3).

LARYNGOLOGY, OTOLOGY AND RHINOLOGY: Hotel Brighton (4)—Guild Hall, Ascension Church (14).

DISEASES OF CHILDREN: Seaside House (10)—Seaside House (10).

PHARMACOLOGY AND THERAPEUTICS: Hotel Dennis (2)—Grammar School Gymnasium (12).

PATHOLOGY AND PHYSIOLOGY: Hotel Shelburne (1)—Playroom, Hotel Dennis (2).

STOMATOLOGY: Craig Hall (13)—Craig Hall (13).

NERVOUS AND MENTAL DISEASES: Hotel Brighton (4)—Brighton Casino (4).

DERMATOLOGY: Seaside House (10)—Hotel Chalfonte (8).

PREVENTIVE MEDICINE AND PUBLIC HEALTH: Hotel Shelburne (1)—St. Paul's Church (11).

GENITO-URINARY DISEASES: Hotel Alamac (7)—Odd Fellows Hall (16).

HOSPITALS: Marlborough-Blenheim (3)—Marlborough-Blenheim (3).

## LOCAL COMMITTEE ON ARRANGEMENTS

William Edgar Darnall, Chairman, 1704 Pacific Avenue.
E. C. Chew, Treasurer. Henry T. Harvey, Secretary.

### SUBCOMMITTEES

COMMITTEE ON FINANCE
George Scott, 1109 Pacific Avenue, Chairman.

COMMITTEE ON ENTERTAINMENT
William J. Carrington, 905 Pacific Avenue, Chairman.

COMMITTEE ON SECTION ENTERTAINMENT
W. E. Jonah, 1616 Pacific Avenue, Chairman.

COMMITTEE ON HOTELS
Thomas D. Taggart, 25 South Indiana Avenue, Chairman.

COMMITTEE ON HALLS AND MEETING-PLACES
Walt P. Conaway, 1723 Pacific Avenue, Chairman.

COMMITTEE ON SECTION MEETINGS
Byron G. Davis, 1512 Pacific Avenue, Chairman.

COMMITTEE ON PROGRAMS
C. Coulter Charlton, 114 South Illinois Avenue, Chairman.

COMMITTEE ON PRINTING
Walter Reynolds, 27 South Indiana Avenue, Chairman.

COMMITTEE ON BADGES
E. H. Harvey, 20 North Florida Avenue, Chairman.

COMMITTEE ON SCIENTIFIC EXHIBIT
I. E. Leonard, 2842 Atlantic Avenue, Chairman.

COMMITTEE ON REGISTRATION
William Martin, 36 S. North Carolina Avenue, Chairman.

COMMITTEE ON INFORMATION
Richard Bew, 1217 Pacific Avenue, Chairman.

COMMITTEE ON ALUMNI ENTERTAINMENTS
Joseph C. Marshall, 1517 Pacific Avenue, Chairman.

COMMITTEE ON POST-OFFICE AND TELEPHONES
C. Garrabrandt, 19 North Pennsylvania Avenue, Chairman.

COMMITTEE ON COMMERCIAL EXHIBIT
E. Guion, 34 S. North Carolina Avenue, Chairman.

LADIES' COMMITTEE
Mrs. E. H. Harvey, 20 North Florida Avenue, Chairman.

## REGISTRATION

### The Importance of Registering Early—A Few Instructions Given

The Bureau of Registration will be located in the Exposition Building, Kentucky Avenue and Boardwalk. A committee of local physicians will assist members in registration. A branch post-office will be opened and a Bureau of Information established in connection with the Registration Bureau.

Members must register in order to obtain the official badge and program. The badge will be necessary for admission to entertainments. All are urged to register as soon as they can name their hotels.

The Registration Department will be open from 8:30 a. m. to 5:30 p. m., on Monday, Tuesday, Wednesday and Thursday, June 22, 23, 24 and 25, and from 9 to 10 a. m. on Friday, June 26.

Attention is called to the following directions:

1. Each physician desiring to register will first fill out the registration card. One should write very plainly, or print, as the cards are given to the printer to use as "copy" for putting the names in the daily *Bulletin.*
2. *Each Fellow who has paid his annual dues* in full will present his pocket card (which was sent him from the Chicago office) and his filled-out registration card at a window marked "Registration by Pocket Card."
3. A delay, in order that the records may be consulted, always inconveniences those who have paid their dues but who fail to present their pocket cards, as suggested above. Be sure to bring your "pocket card."
4. *Fellows who have not paid* their dues will present registration card and make payment at a window marked "Cash."
5. *Each applicant for Fellowship* will present his registration card at the window marked "New Fellows," with a certificate of membership in his state society. Prospective Fellows, however, will save delay and annoyance by sending in their applications before the session. All such applications should be mailed to the American Medical Association, 535 North Dearborn Street, Chicago, so as to arrive not later than June 10.
6. Each Fellow on registering will receive a badge, a copy of the Official Program containing a full announcement of the scientific proceedings, invitations to the social functions, and such other notices as may be of interest.

## PUBLIC HEALTH SUNDAY IN PHILADELPHIA

In accordance with the plan followed for several years past, speakers on appropriate public health topics will be furnished for the churches, June 21, the Sunday preceding the session, only this year, instead of furnishing speakers for Atlantic City churches, speakers will be supplied for all the churches in Philadelphia desiring an address on public health. This plan was followed last year in Minneapolis and St. Paul with great success, practically all of the churches participating, including the Jewish, Roman Catholic and all of the Protestant denominations. The work of supplying speakers for the churches is under the direction of the Council on Health and Public Instruction. A local committee, of which Dr. Edward Martin is chairman, has been appointed by the Philadelphia County Medical Society to cooperate with the Council in this work. Arrangements for filling the Philadelphia pulpits are now going on and it is anticipated that a large proportion of the eight hundred churches in Philadelphia will participate in the observance of Public Health Sunday in the churches. Further details will be given later as the plans develop.

## SOCIAL ENTERTAINMENTS

(The official Fellow's badge, or one of those provided for ladies and guests, will be required for admission to entertainments, and to piers and other places to which free entrance is granted to those in attendance on the annual session.)

An excellent series of entertainments and amusements has been provided for the Fellows and the visiting ladies.

Monday night there will be banquets and smokers of some of the societies which meet before the session.

Tuesday night, the banquets, smokers and vaudevilles of the sections and the various medical alumni and class reunions.

Wednesday night a reception and ball in honor of the President will be given in the Music Room, Steel Pier. This is the most formal of the social functions of the meeting.

Thursday night there will be a musicale in the Ball Room and Music Room on the Steel Pier.

The program for the ladies' entertainment includes an introduction reception Tuesday afternoon; formal reception at the Marlborough-Blenheim at 2 o'clock Wednesday afternoon, and *thé dansant* at 4 o'clock Thursday afternoon at the Atlantic City Yacht Club.

## ALUMNI REUNIONS

Alumni Associations that may desire to hold reunions during the meetings of the American Medical Association are requested to communicate, through their secretaries, with Dr. Joseph C. Marshall, Chairman of the Committee on Alumni Entertainments, 1517 Pacific Avenue, Atlantic City, the date desired for such meetings and any suggestions of entertainments they may wish to provide should be stated. Places of meeting or entertainment will be selected for them on request.

## THE SECTION BANQUETS

The customary banquets of the sections of the Association will occur on Tuesday evening, June 23, at 7:30 o'clock (unless otherwise announced). Tickets are obtainable from the secretaries of the respective sections.

A joint dinner of the Section on Ophthalmology and the Section on Laryngology, Otology and Rhinology in honor of their guests, will be held at the Hotel Shelburne at 7 o'clock on Tuesday evening, June 23. The dinner will be followed by a Section burlesque arranged especially for this occasion by the Entertainment Committee: Joseph D. Lewis, Chairman; Carl Fisher; Ross H. Skillern, and George S. Crampton.

## BANQUET OF WOMEN PHYSICIANS

The women physicians attending the meeting of the American Medical Association will have a dinner at the Hotel Chelsea, Tuesday evening, June 23, at 7:30 o'clock. Those desiring to attend will please remit $3 to Dr. Clara K. Bartlett, 4301 Atlantic Avenue, Atlantic City.

## ALPHA OMEGA ALPHA

The Alpha Omega Alpha Fraternity will meet at the Seaside Hotel, Wednesday, June 24. A luncheon will be served at 12:30 p. m., and a short session will be held immediately following.

## MEETING OF NON-AFFILIATED ORGANIZATIONS

The American Academy of Medicine is to meet in Atlantic City, June 19-21. The headquarters and meetings will be at the Hotel Dennis. The social session and banquet will be given at the same place on the evening of June 20, at 7 o'clock. The general topic of the meeting will be "The Practice of Medicine and the Industries," and several valuable papers are promised.

## ASSOCIATION OF STATE SECRETARIES AND EDITORS

Dr. Lillian H. South, secretary of the Association of State Secretaries and Editors, announces the annual dinner of this organization to be held at the Marlborough-Blenheim, Monday evening, June 22, at 7 o'clock. This year it will be a subscription dinner at $3.50 a cover. All secretaries and editors are requested to be present and to advise Dr. South as early as possible if they are planning to attend, in order that places may be reserved. An interesting program is being arranged for this occasion. Remember to bring your Association bar pin with you to the meeting.

## POST-OFFICES AND TELEPHONES

An Association Post-Office will be maintained at the Registration Bureau in the Exposition Building, Kentucky Avenue and Boardwalk. Guests are requested to order mail addressed to them "Care American Medical Association, Exposition Building," or to their hotels, as preferred.

Telephone booths will be provided at each meeting-place for the use of Fellows.

# THE COMMERCIAL EXHIBIT

## Books, Instruments, Surgical Appliances, Foods, Drugs, Furniture, Etc., to be Shown at Atlantic City

The commercial exhibit at the Atlantic City session will have commodious quarters in the Atlantic City Exposition Building, corner of Kentucky Avenue and the Boardwalk. The scientific exhibit, registration department, post-office, information bureau, etc., will be under the same roof as the commercial exhibit.

The sincere and studious efforts of the various firms have made the commercial exhibit a real educational demonstration of medical, surgical and pharmaceutical advances. Each succeeding year sees this feature of the meeting appealing more directly to the members of the profession. Here the physician is offered annually an opportunity to become posted on the newer methods introduced in medical work and to obtain this information through demonstrations which are practical and easily remembered with a small expenditure of time. It is the earnest desire of the officials who superintend the exhibits to have each display of such high class that it will be instructive and beneficial and may rightly be regarded by the profession as a part of the educational advantages of the meeting.

Physicians are urged to feel free to examine each exhibit and to ask questions concerning every demonstration in which they are interested. They can do this without fear of importunity to purchase unless they desire to do so, since one of the principal purposes of the demonstrations given in connection with exhibits is to obtain an interchange of opinion which will mutually benefit both the physician and the manufacturer.

In short, as one physician remarked, these exhibits contain a mine of new ideas for the practitioner who at home is usually so much absorbed in the daily cares of routine medical work that he does not have time to keep abreast of present advances through current medical literature. Dr. Edward Guion of Atlantic City is the local chairman and Will C. Braun, 535 North Dearborn Street, Chicago, Ill., is the superintendent of exhibits.

Following we give a list of the exhibitors with a series of brief notices concerning those firms from whom we have received a statement descriptive of their exhibits.

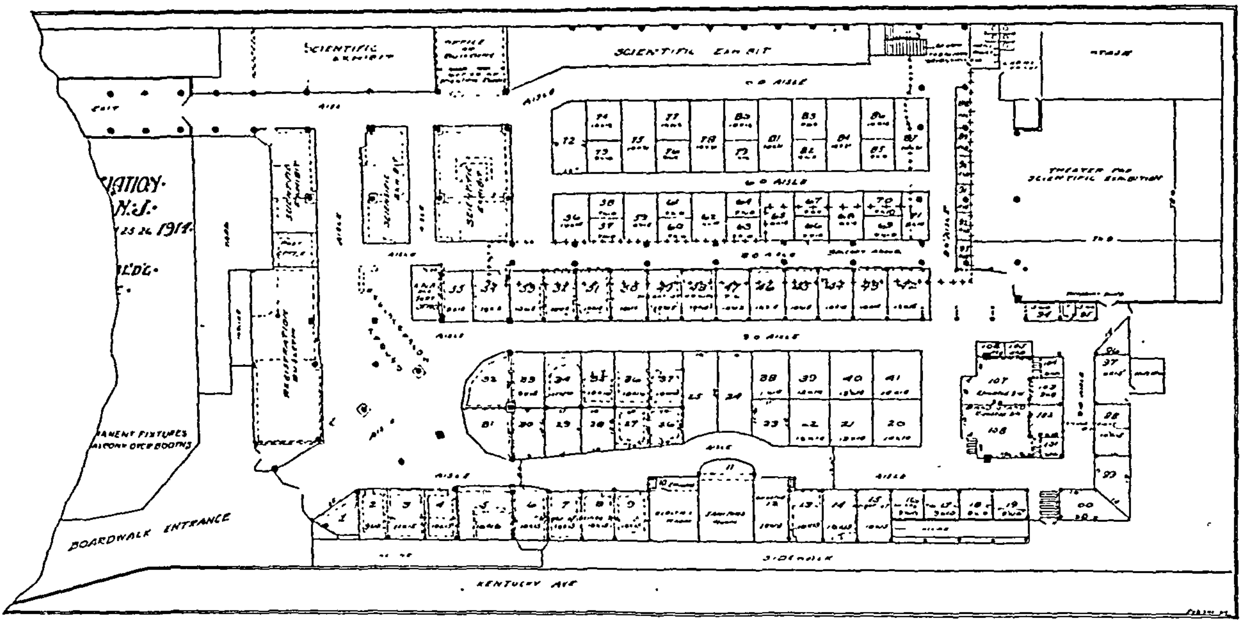
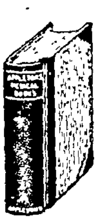


DIAGRAM OF EXHIBIT HALL

### Exhibitors

| Exhibitors | Space |
|---|---|
| Allison Co., W. D., Philadelphia | 83 |
| Ambroid Co., New York City | 18 |
| Ambulatory Pneu. Splint Mfg. Co., Chicago | 10 |
| Anatomik Footwear Co., New York City | 44 |
| Antiseptic Supply Co., New York City | 85 |
| Apollinaris Agency Co., New York City | 11 |
| Appleton & Co., D., New York City | 26 |
| Arlington Chemical Co., Yonkers, N. Y. | 54 |
| Armour & Co., Chicago | 74 |
| Bausch & Lomb Opt. Co., Rochester, N. Y. | 86 |
| Bard, Charles R. | 102 |
| Berger Bros., New Haven, Conn. | 94 |
| Betz Co., Frank S., Hammond, Ind. | 21-40 |
| Blakiston's Son & Co., P., Philadelphia | 4 |
| Borden's Condensed Milk Co., N. Y. City | 96-97 |
| Brady & Co., Geo. W., Chicago | 92 |
| Brown, D. V., P | 28 |
| Burdick Cabinet | 12 |
| Burroughs Wellc | 84 |
| Campbell Electric Co., Lynn, Mass. | 68 |
| Carnes Artif. Limb Co., Kansas City, Mo. | 76 |
| Castle Co., Wilmot, Rochester, N. Y. | 73 |
| Chicago Medical Book Co., Chicago | 50 |
| Crown Surg. Inst. Co., N. Y. City | 100 |
| Davis Co., F. A., Philadelphia | 17 |
| Deimel Linen-Mesh System Co., N. Y. City | 34 |
| De Vilbiss Mfg. Co., Toledo, Ohio | 8 |
| De Zeng Standard Co., Camden, N. J. | 78 |
| Electro Surgical Inst. Co., Rochester, N. Y. | 38 |
| Fairchild Bros. & Foster, N. Y. City | 2 |
| Forbes Dry Plate Co., Rochester, N. Y. | 60 |
| Green & Bauer, Hartford, Conn. | 91 |
| Hardy & Co., F. A., Chicago | 75-77 |
| Hoeber, Paul B., New York City | 1 |
| Horlick's Malted Milk Co., Racine, Wis. | 5 |
| Hygienic Fibre Co., New York City | 82 |
| Hynson Westcott Co., Baltimore, Md. | 33 |
| Indiana Springs Co., Kramer, Ind. | 95 |
| Jaeckh Mfg. Co. | 102 |
| Johnson & Co., Mead, Jersey City, N. J. | 49 |
| Kelley-Koett Mfg. Co., Covington, Ky. | 98 |
| Kny-Scheerer Co., New York City | 87 |
| Lea & Febiger, Philadelphia | 3 |
| Leitz, Ernst, New York City | 7 |
| Lentz & Sons, Chas., Philadelphia | 35 |
| Life Savings Devices Co., Chicago | 99 |
| Lippincott & Co., J. B., Philadelphia | 52-53 |
| Macalaster, Wiggin & Co., Boston | 57 |
| Machlett & Son, E., New York City | 103 |
| Maltine Co., The, Brooklyn, N. Y. | 89-90 |
| McIntire, Magee & Brown Co., Phila. | 71 |
| McIntosh Bat. and Opt. Co., Chicago | 81 |
| Mellins Food Co., Boston | 55 |
| Meyer & Co., Wm., Chicago | 47 |
| Meyrowitz, Inc., E. B., N. Y. City | 43 |
| Miller Rubber Co., The, Akron, Ohio | 69-70 |
| Morris & Schraeder, New York City | 61 |
| Mosby Co., C. V., St. Louis, Mo. | 56 |
| Mueller & Co., V., Chicago | 29-30 |
| Mulford Co., H. K., Philadelphia | 42 |
| Physicians' Specialty Co., Leesburg, Va. | 101 |
| Physicians' Supply Co., Philadelphia | 48 |
| Pierce, Harvey R., Philadelphia | 67 |
| Pilling & Son, Geo. P., Philadelphia | 51 |
| Pompeian Co., The, Washington D. C. | 88 |
| Precision Thermom. & Inst. Co., Phila. | 13 |
| Pulvola Chemical Co., Jersey City, N. J. | 106 |
| Radium Chemical Co., Pittsburgh, Pa. | 62 |
| Rehman Company, New York City | 80 |
| Reinschild Chemical Co. | 79 |
| Sanitary Products Co., Chicago | 37 |
| Saunders Co., W. B., Philadelphia | 31-32 |
| Scheidel-Western X-Ray Coil Co., Ch'go. | 107-108 |
| Schering & Glatz, New York City | 105 |
| Schieffelin & Co., New York City | 6 |
| Scholl Mfg. Co., Chicago | 58 |
| Smith, Kline & French Co., Philadelphia | 9 |
| Snook-Roentgen Mfg. Co., Philadelphia | 14 |
| Spirella Co., The, Philadelphia | 65 |
| Squibb & Son, E. R., New York City | 72 |
| Storm, Dr. Katherine L., Perkasie, Pa. | 66 |
| Surgical Narcosis Supply Co. | Table Space |
| Taylor Inst. Co., Rochester, N. Y. | 24-25 |
| Teter Mfg. Co., Cleveland, Ohio | 16 |
| Van Orden Corset Co., New York City | 36 |
| Victor Electric Co., Chicago | 63-64 |
| Waite & Bartlett Mfg. Co., N. Y. City | 104 |
| Wall & Ochs, Philadelphia | 27 |
| Wampole, H. K., Philadelphia | 20 |
| Wappler Electric Mfg. Co., N. Y. City | 22-39 |
| Weder Manufacturing Co., Philadelphia | 59 |
| Weissfeld Bros., New York City | 85 |
| Welch Grape Juice Co., Westfield, N. Y. | 45-46 |
| White Sulphur Springs | 19 |
| Wilson & Wilson, Boston | 93 |
| Wood & Co., Wm., New York City | 41 |
| Woolf, Michael, New York City | 15 |
| Zemmer Co., Pittsburgh, Pa. | 23 |

## Publishers and Books



**D. Appleton & Co.**, New York City. Space 26. A representative number of new medical books will be displayed, including "Anemia and Resuscitation," by George W. Crile, A.M., M.D. "Borderline Diagnosis," by J. N. Hall, B.S., M.D. Stockton's "Diseases of the Stomach," Behan's monograph on "Pain," and Dr. W. Gilman Thompson's "Occupational Diseases." Two of their most important publications, Gwathmey's "Anesthesia" and Kelly's "Kidney Diseases," are shown in proof form.

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**P. Blakiston's Son & Company**, Philadelphia. Space 4. During the past year this firm have made large progress in the work of "service-giving" to the profession. Their product has been large and the quality right up to the Blakiston standard. Representatives of the firm will have much of interest and value to present, especially in books on Diseases of Children, Diseases of Old Age, Practice of Medicine, Obstetrics, Ophthalmology, Surgery, Chemistry and Clinical Diagnosis.

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**Chicago Medical Book Co.**, Chicago. Space 50. Will exhibit a most complete assortment of the latest English importations. A representative showing will also be made of the best and newest medical works of the various American publishers. These will make their booth one of the most interesting at the coming meeting.

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**Paul B. Hoeber**, New York City. Space 1. An exhibit of Medical Books that, on account of its variety, will interest every visitor. Their own publications, consisting of monographs by Osler, Ehrlich, Wright, Mackenzie, Lewis, Squier, Einhorn, Paget, etc., will be supplemented by the new and important English, German and French publications. There will also be the wonderful reproduction of Leonardo da Vinci's Anatomy, the original edition of Vesalius and other rare items. Specialists in all lines will find numerous monographs to interest them.

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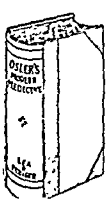

**Lea & Febiger**, Philadelphia and New York. Space 3. There will be exhibited the following new works: Ashhurst's Surgery, Lynch on the Rectum, Newcomet on Radium, Braun's Local Anesthesia, Norris on Blood-Pressure, Wright and Smith on the Nose and Throat, Knowles on Skin Diseases, Osler's "Modern Medicine," Vol. III, Goodman on Blood-Pressure. New editions just published: Kanavel on the Hand, Hare's Bedside and Office Diagnosis, Ballenger on the Nose, Throat and Ear, Jackson on the Skin, Harrington's Hygiene.

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**J. B. Lippincott Company**, Philadelphia. Spaces 52 and 53. Numerous new, modern and practical books by authoritative writers on medical subjects and allied sciences will be found at this exhibit. A series of remarkable enlarged anatomical studies from Piersol's Anatomy is to be a feature of the exhibit, which every practitioner will want to see.

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**C. V. Mosby Company**, St. Louis, Mo. Space 56. Will feature Loeb's "Operative Surgery of the Ear, Nose and Throat," two volumes; Crossen's "Operative Gynecology"; Barnes' "The Tonsils"; Hoyt's "Practical Therapeutics"; Gardner-Simonds' "Handbook of Practical Sanitation." They will also have an attractive line of monographs. Their new and revised Golden Rule Series will be one of the special features of the display.

**Rebman Company**, New York. Space 80. Attention is drawn at this exhibit to Schmidt "Malignant Tumors of the Abdominal Viscera." Rudolf Krause "A Normal Course in Histology." Krause "Surgery of the Brain and Spinal Cord." Ruttin "Diseases of the Labyrinth." Mitchell "Doctor in Court." Reed "Sex; Its Origin and Determination." Kingsbury "Dermochromes." Gardner "Iconograms." Sabouraud Regional Dermatology" (new edition). Greeff "External Diseases of the Eye" (new edition).

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**W. B. Saunders Company**, Philadelphia. Spaces 31 and 32. There will be many new books and new editions in this exhibit of unusual value, such as Crile and Lower's Anoci-Association, Thomson's Clinical Medicine, Kerley's Practice of Pediatrics, Allen's Local Anesthesia, Murphy's Clinics for June, a new Mayo volume, Ward's Clinical Hematology, Kaplan's Serology of Nervous and Mental Diseases, Mallory's beautiful Pathologic Histology, new editions of Da Costa's Modern Surgery, Grulee's Infant-Feeding, Brill's Psychanalysis, Stelwagon's Diseases of the Skin, etc.

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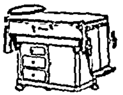
**William Wood & Co.**, New York City. Space 41. A great number of important books of most recent publication, indicating an unusually active year in medical publishing, will be displayed. Some of the most important works, from a scientific and practical viewpoint are: "Reference Handbook of the Medical Sciences," 8 volumes, new edition; Cunningham's "Manual of Practical Anatomy," two volumes, new edition; Stedman's Medical Dictionary, La Garde's "Gunshot Wounds," Yeo's "Manual of Medical Treatment," two volumes, new edition; Castellani's "Tropical Medicine," new edition; May's "Manual of Diseases of the Eye," new edition; Cunningham's "Text-Book of Anatomy," new edition; Tredgold's "Mental Deficiency," new edition. Attention is called to the *British Journal of Surgery*, a new quarterly, now in its second year.

## Apparatus, Instruments and Furniture



**W. D. Allison Co.**, Indianapolis. Spac[illegible]tical and [illegible] will be s[illegible]automatic tables; ingeniously designed medicine cabinets; examining and treatment chairs; stools; stands; waste receptacles; reception-room furniture, and everything incident to the complete modern office. Representative styles will be on exhibition.

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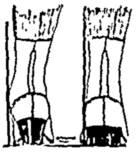

**Anatomik Footwear Co.**, New York City. Space 44. Their shoes for men, women and children will be exhibited. The construction of their footwear is such that it affords full support for the whole of the foot, whereas in ordinary shoes (as illustrated in the accompanying sketch), the weight-bearing part of the foot overhangs the base of the shoe.

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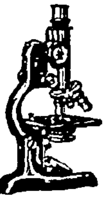

**Bausch & Lomb Optical Co.**, Rochester, N. Y. Space 86. New models in microscopes, microtomes, centrifuges and other laboratory apparatus and supplies will be displayed by this firm. The instruments shown will form an instructive demonstration of the most recent improvements in diagnostic apparatus which advances in laboratory examination have made necessary.

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**Frank S. Betz Co.**, Chicago. Spaces 21 and 40. This exhibit will consist of an unusually large display of surgical instruments, batteries, operating-tables. lamps, sterilizers, high-frequency outfits and complete medical, surgical and hospital equipment. A special feature of this exhibit will be a flash coil which makes a skiagraph of the chest of the heaviest patient after very brief exposure.

**Geo. W. Brady & Co.**, Chicago. Space 92. There will be exhibited some of the work done by various x-ray operators who are using the new Paragon X-Ray Plates. These plates are said to have met with great success since placed on the market, owin to their very fine quality, great speed an accuracy in bringing out minuteness of deta and shadow outlines.

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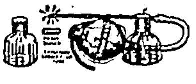

**DeVilbiss Manufac turing Company**, T ledo, Ohio. Space 8. display of a full line prescription and patient atomizers. Special attention will be called t the style of construction used in the man. facture of DeVilbiss Atomizers, their utilit and their advantages for both office and pr scription purposes.

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**Forbes Dry Plate Co.**, Rochester, N. Y. Space 60. This firm will display a very interesting series of radiographs made on Forbes X-Ray Plates showing their extremely wide latitude, the quality attained in Forbes Plates which reduces the chance of failure to a minimum and makes them so simple and easy to work.

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**F. A. Hardy & Co.** Spaces 75 and 77. line of eye, ear, nose and throat surgical in struments—for the most part specialties man ufactured by this firm—as well as a numbe of ophthalmologic specialties, will be exhibited. All instruments on display will be up to-date and many are of new design.

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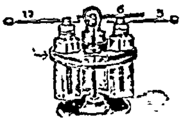

**Jaeckh Manufacturin Co.**, Cincinnati, Ohio. 102. Demonstrations will b made of cleaning machine for use in residences, hospitals, etc., air compressing machines for supplying compressed ai in medical offices, garages or in any building where an air pressure up to 200 pound is desired; the new Robertson Compres Air and Vacuum Machine constructed e cially for the doctor's office, and also an expensive yet efficient spraying and nebuliz outfit.

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**Kny-Scheerer Company**, New York City, Space 87. There will be given demonstration of latest improvements in operating-table adjustable in height to suit the convenience of the surgeon, the Hawley table for the suspension and immobilization of the trunk and extremities without lifting or disturbing the patient, the Honan apparatus for anesthesia by the intravenous route and modern sterilizing apparatus of all kinds.

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**Ernst Leitz**, New York City, Space 7. This firm will follow its policy as in past exhibitions to display everything in the way of optics for equipping the private practitioner's laboratory and laboratories of hospitals and medical schools. Some new instruments to be exhibited are the Leitz New Microscope II S, Leitz Thoma-Metz Haemacytometer, Leitz Binocular Microscope with Single Objective, Leitz Greenough Binocular Microscope, Leitz Improved Base Sledge Microtome.

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**The McIntire, Magee & Brown C** Philadelphia. Space 71. This firm h something worth "Blowing about" in the new model Ophthalmometer for measuring the curves of the Eye Cornea correctly. Also the improved adjustable instrument table as well as the Phoria-Meter for measuring the amount of muscular imbalance of the eye at the reading distance. These and many other useful accessories and office equipment for the Oculist' use will be demonstrated.